

# (12) UK Patent Application (19) GB (11) 2 277 914 (13) A

(43) Date of A Publication 16.11.1994

(21) Application No 9408870.5

(22) Date of Filing 03.05.1994

(30) Priority Data

(31) 05108275 (32) 10.05.1993 (33) JP

(71) Applicant(s)

Kao Corporation

(Incorporated in Japan)

14-10 Nihonbashi Kayaba-cho, 1-chome Chuo-ku,  
Tokyo, Japan

(72) Inventor(s)

Minoru Nakanishi  
Hiromi Baba  
Tetsuyuki Kigata  
Mayumi Kuwahara  
Mutsumi Kuroda  
Hiroyuki Yokomatsu

(51) INT CL<sup>5</sup>

B65D 85/16

(52) UK CL (Edition M)

B8C CWA1 CWP2 CWT2  
U1S S1122

(56) Documents Cited

GB 2273279 A GB 2221667 A

(58) Field of Search

UK CL (Edition M) A5R RPF, B8C CWA1 CWP2 CWT2  
INT CL<sup>5</sup> A61F 13/15 15/00, B65D 85/16  
Online databases: WPI

(74) Agent and/or Address for Service

Kilburn & Strod  
30 John Street, LONDON, WC1N 2DD,  
United Kingdom

(54) Wrapping structure for sanitary napkin

(57) The wrapped sanitary napkin structure Figure 1B, comprises an elongate sanitary napkin (10) which is folded one or more times transverse to its length and is enclosed within a wrapping (20). The wrapping is provided with means such as perforations (23) whereby a portion of it may be removed along one edge to form an opening (26) through which the sanitary napkin (10) may be removed. An adhesive layer (16) is provided on that surface of the sanitary napkin which, in use, does not contact the skin of the user. The adhesive layer (16) is detachably adhered to a peelable sheet (21) which is connected to the internal surface of the wrapping only adjacent that side which is closest to the opening (26). In Figure 42B, adhesive layers (316) on the sanitary napkin are detachably adhered to layers of peel material on the inner surface of a wrapper (320), the napkin being folded in three including end portions (313, 315) of differing length.

Fig. 1B

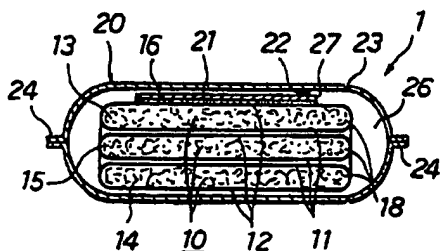
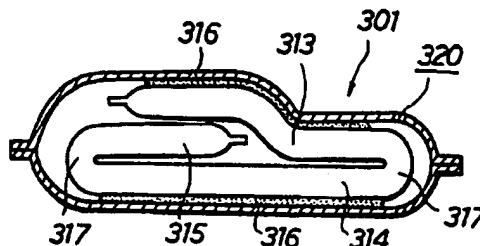
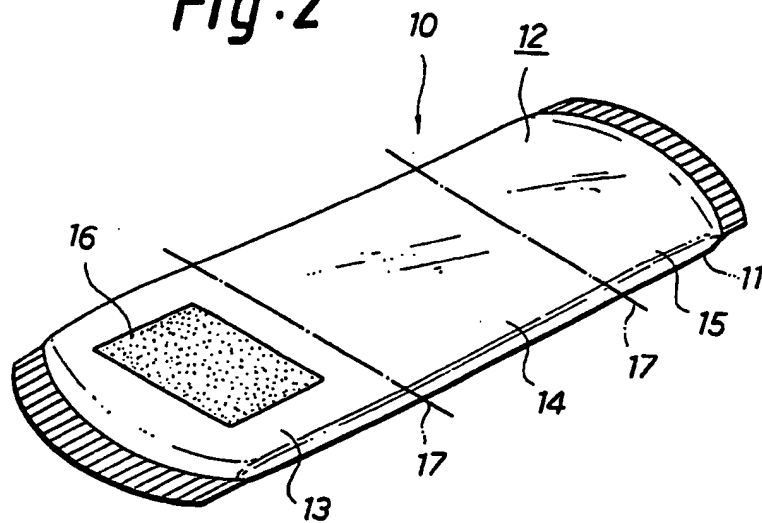
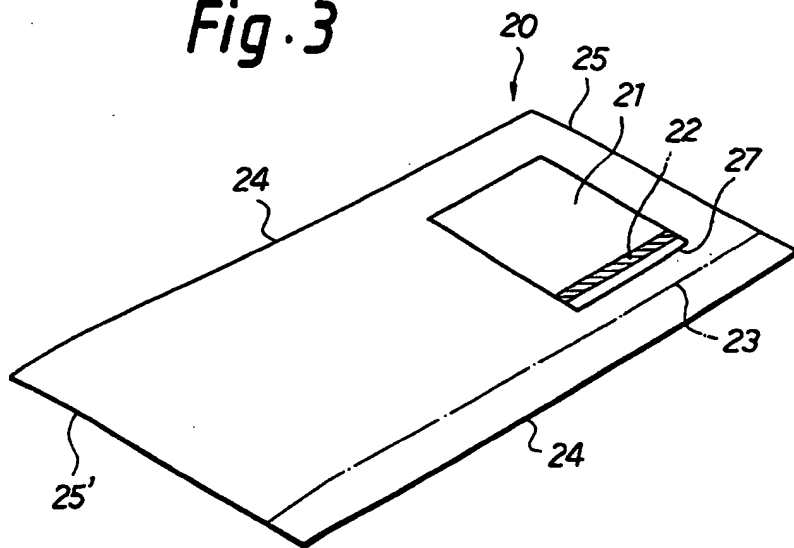


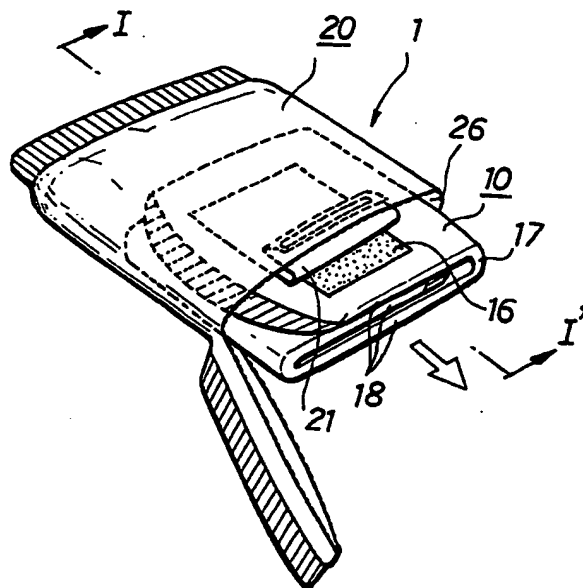
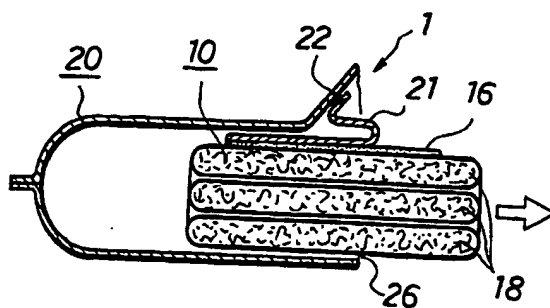
Fig. 42B

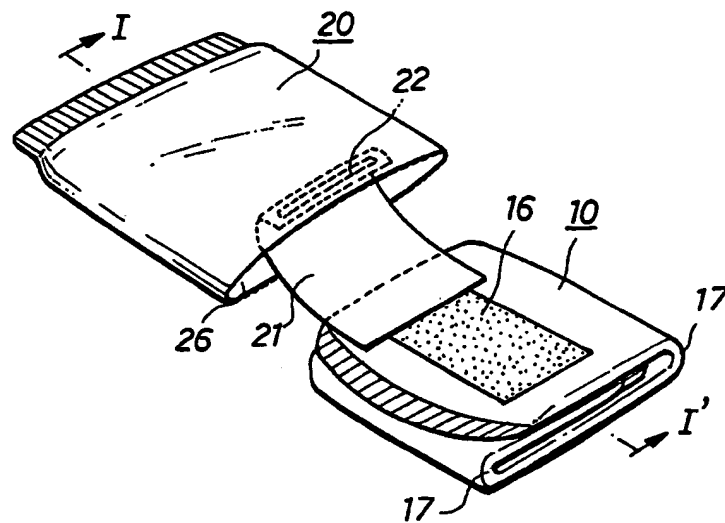
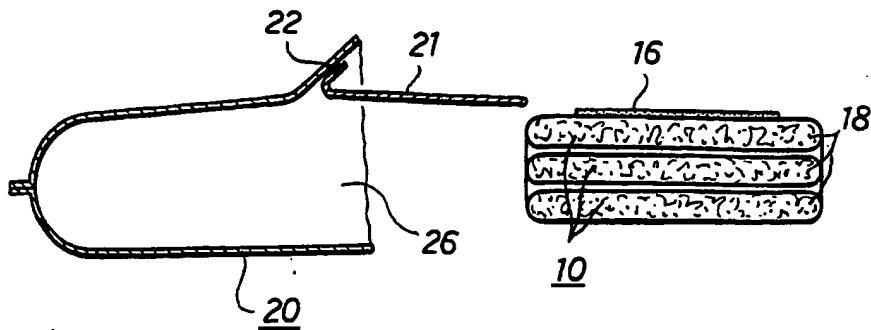


GB 2 277 914 A



**Fig. 2****Fig. 3**

*Fig. 4A**Fig. 4B*

**Fig. 5A****Fig. 5B**

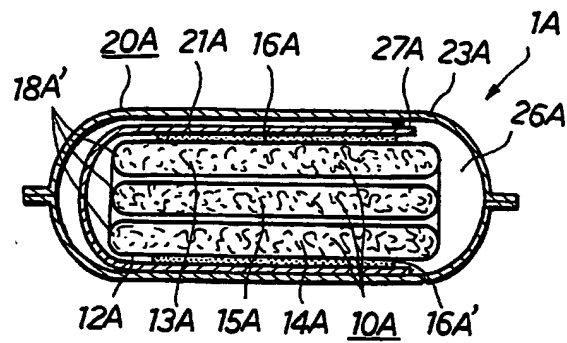
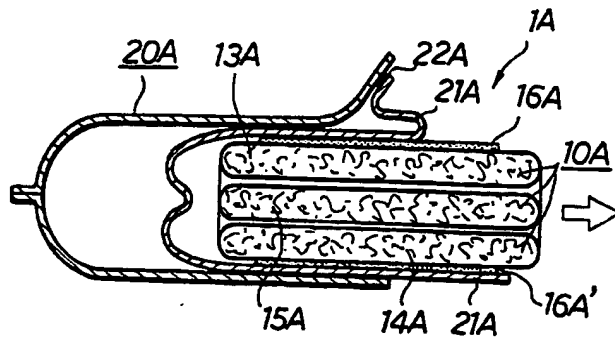
**Fig. 6A****Fig. 6B**

Fig. 7A

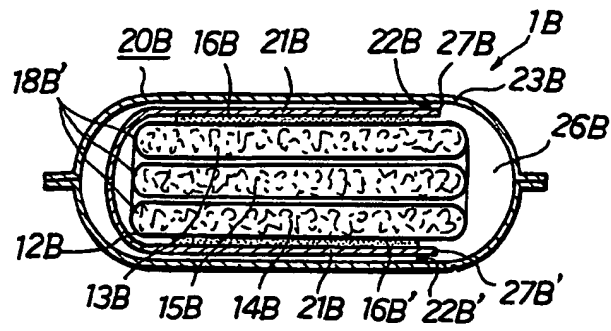
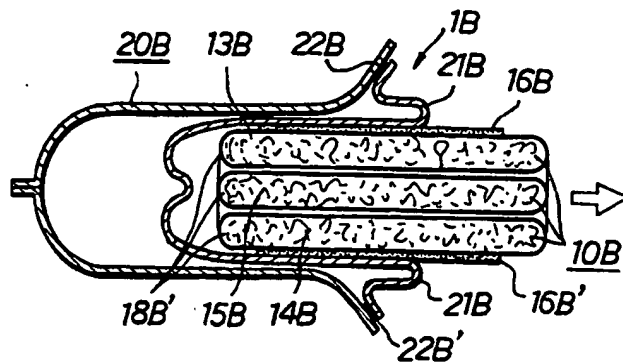
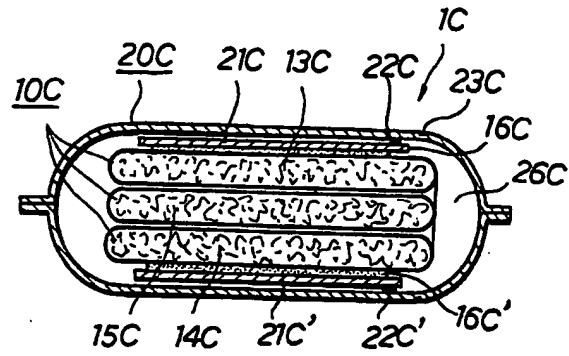
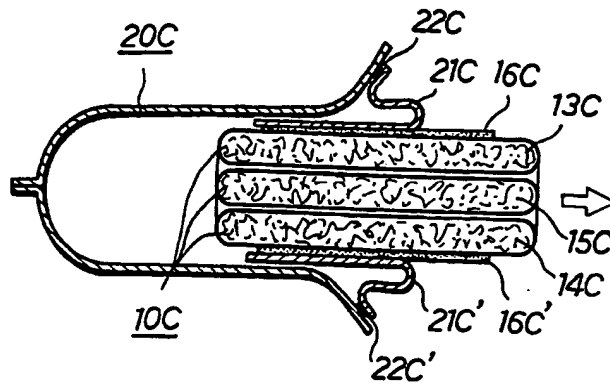
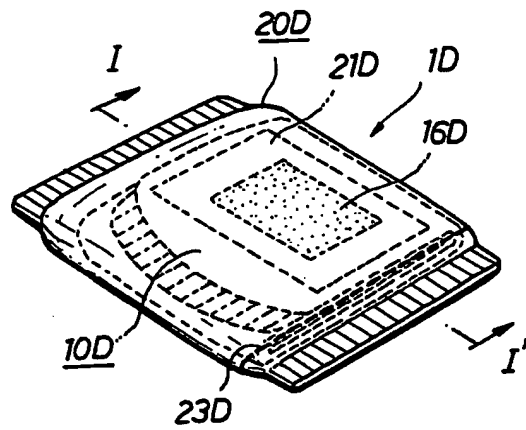
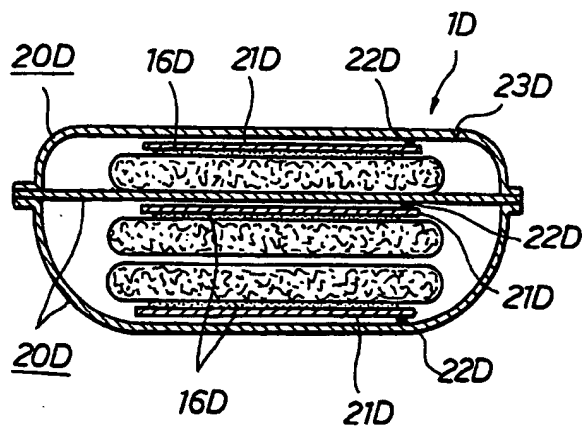


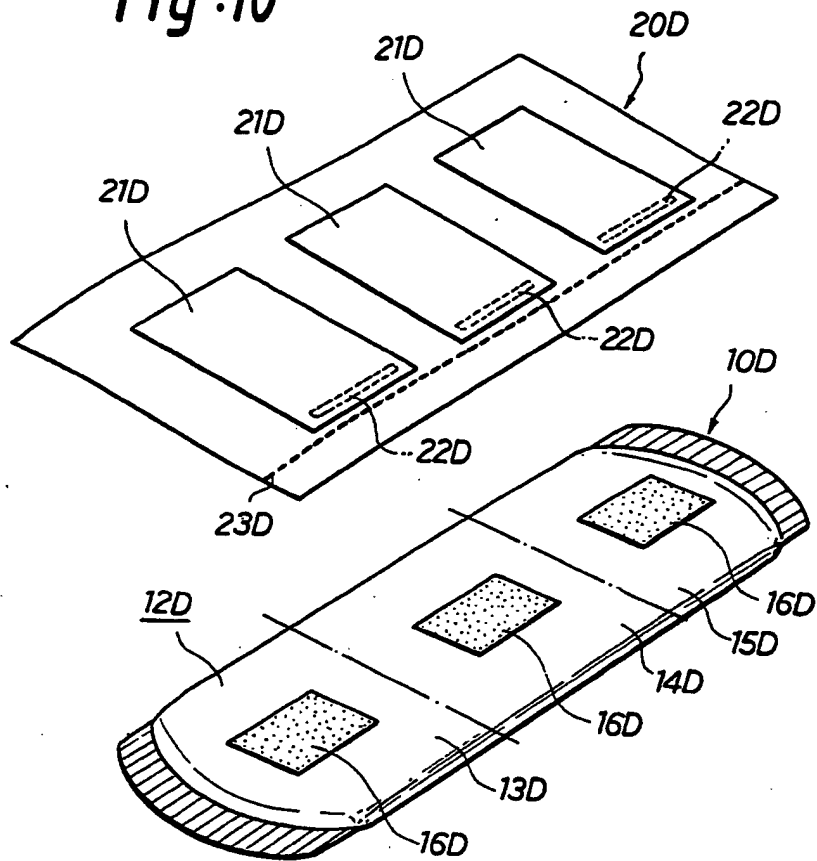
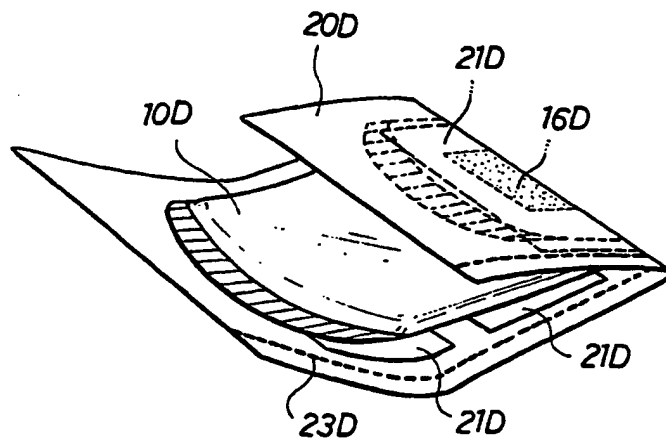
Fig. 7B



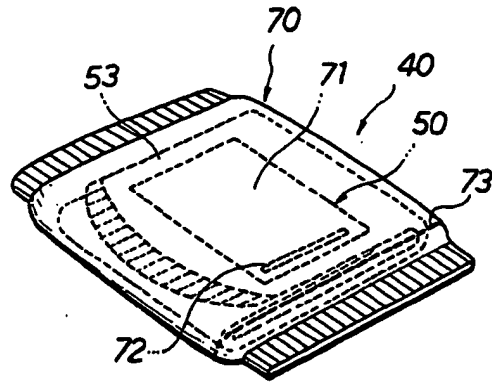
**Fig. 8A****Fig. 8B**



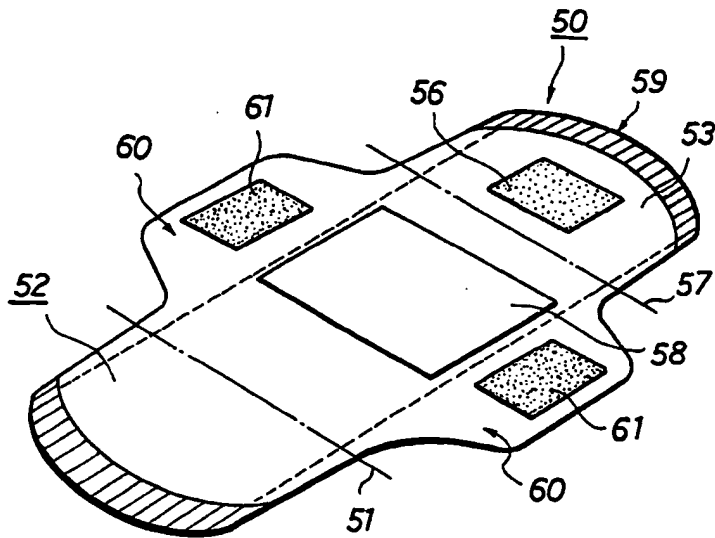
**Fig .9A****Fig .9B**

**Fig .10****Fig .11**

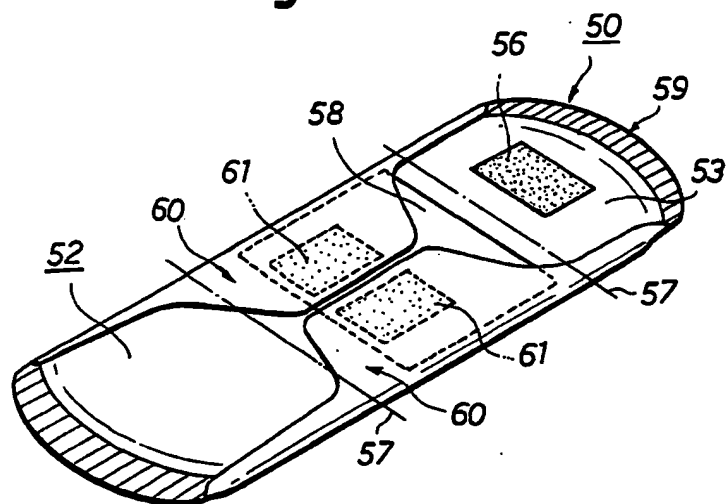
**Fig. 12**



**Fig. 13**



*Fig. 14*



*Fig. 15*

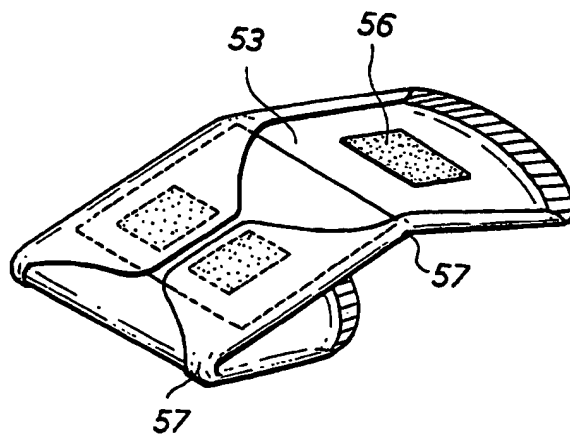


Fig. 16A

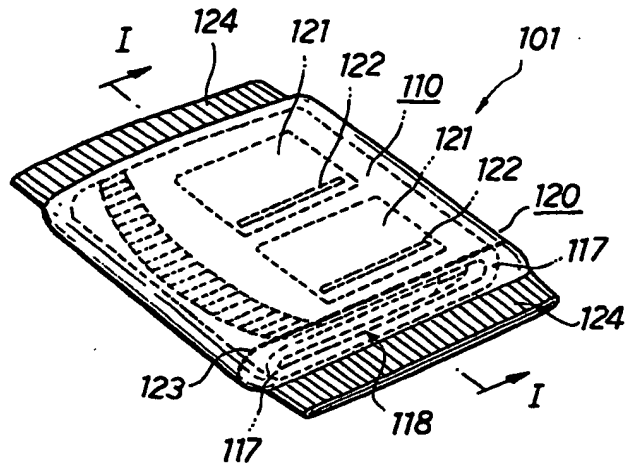
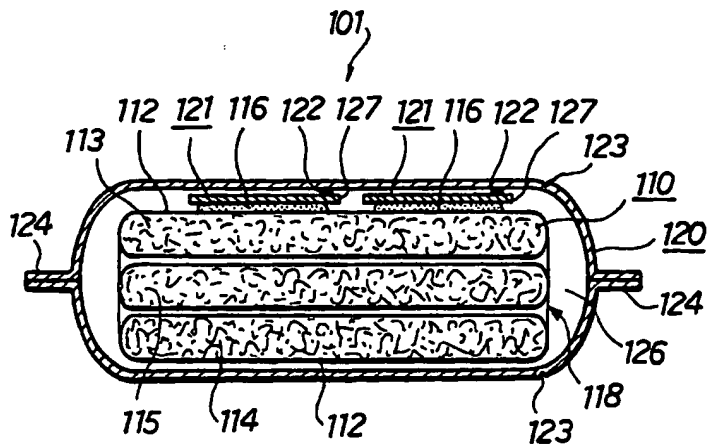
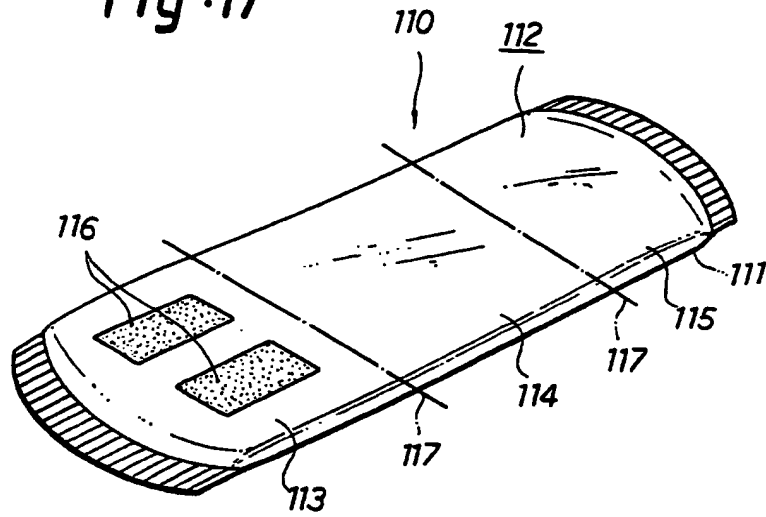
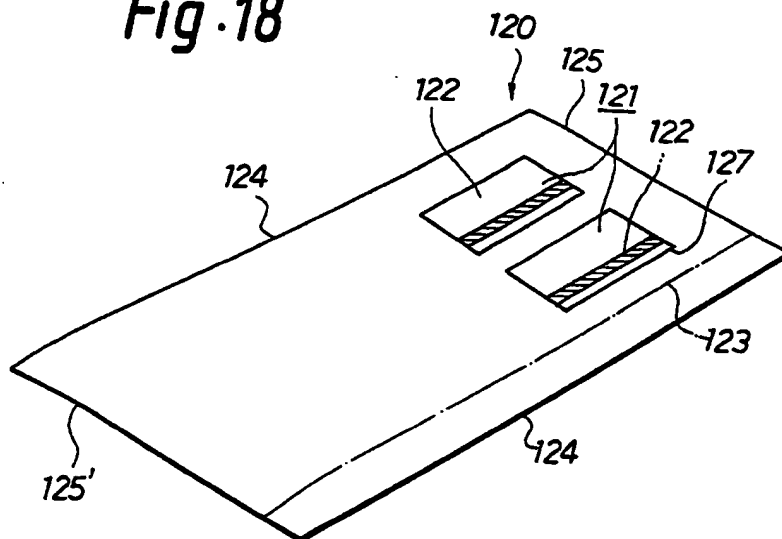


Fig. 16B



**Fig. 17****Fig. 18**

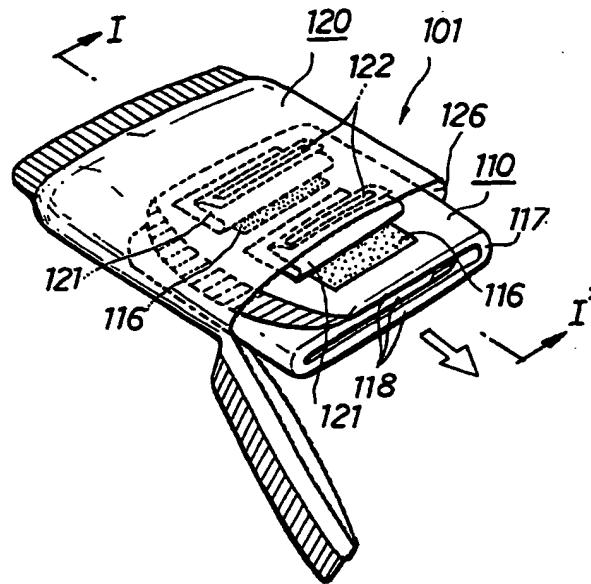
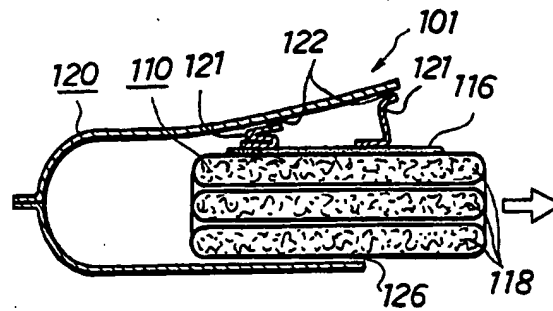
**Fig. 19A****Fig. 19B**

Fig. 20A

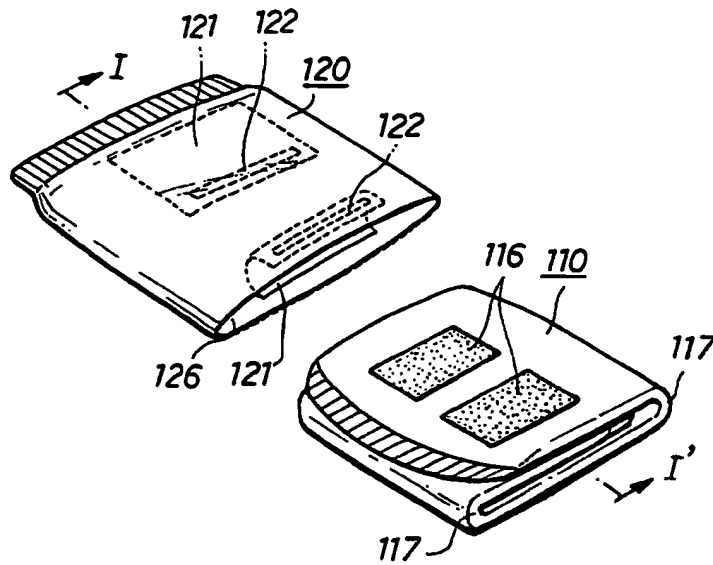
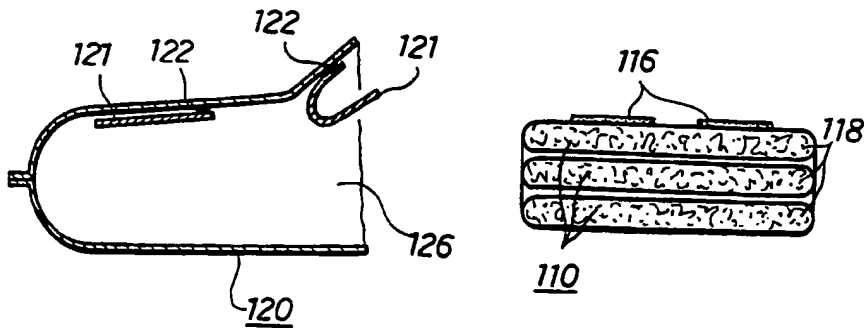
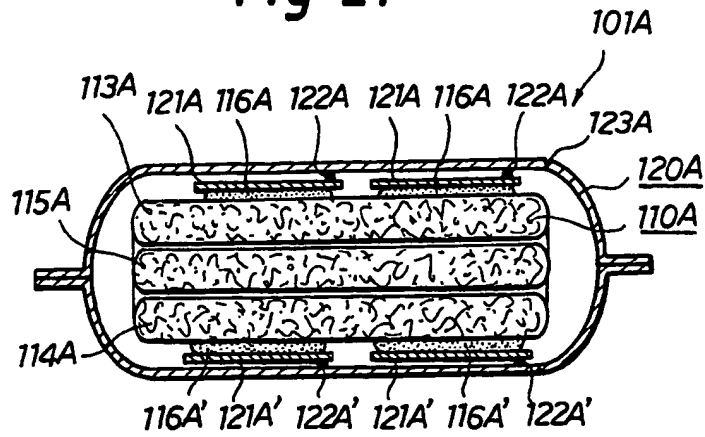
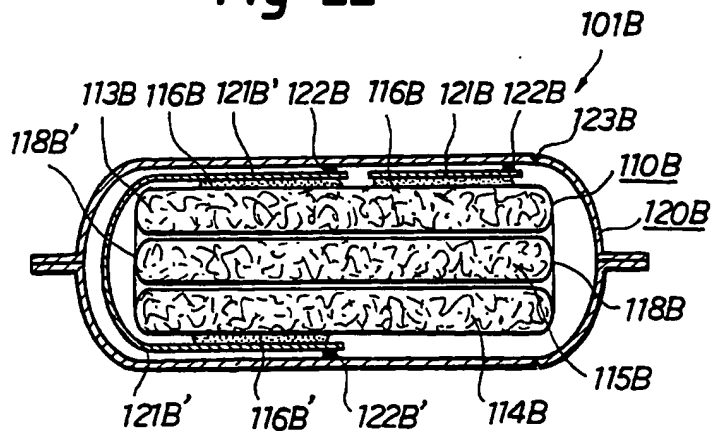


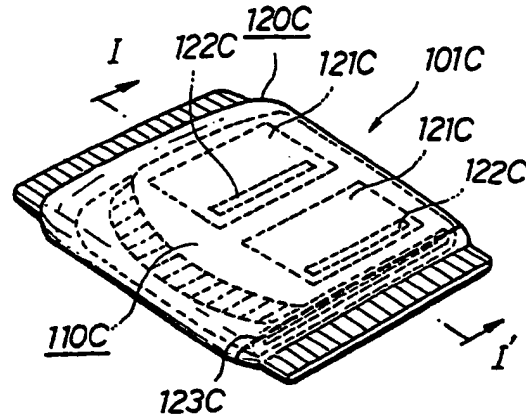
Fig. 20B



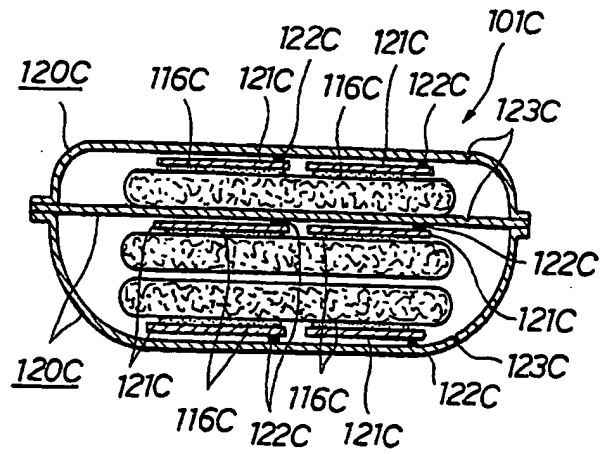


**Fig. 21****Fig. 22**

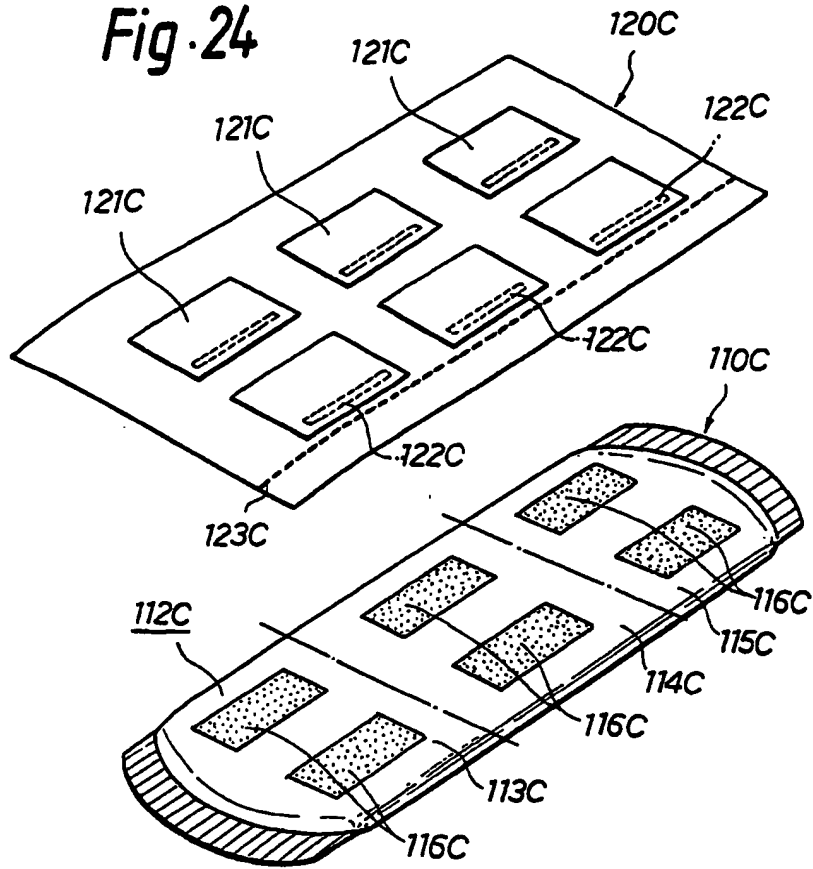
**Fig. 23A**



**Fig. 23B**



**Fig. 24**



**Fig. 25**

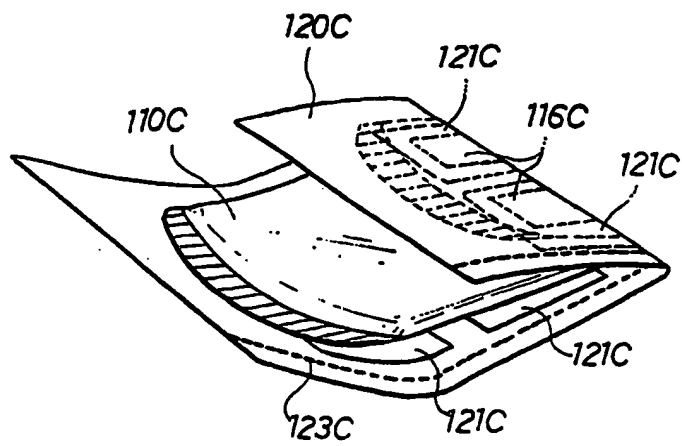


Fig. 26

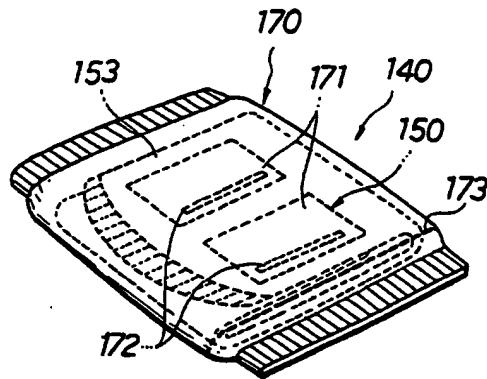
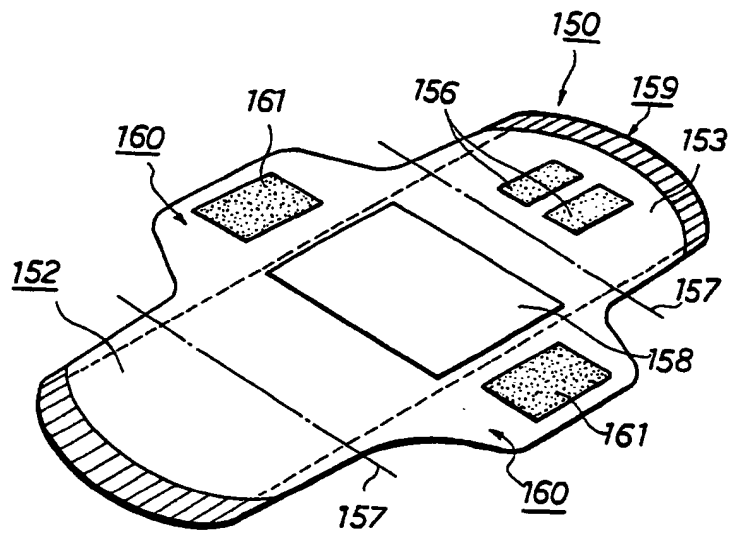
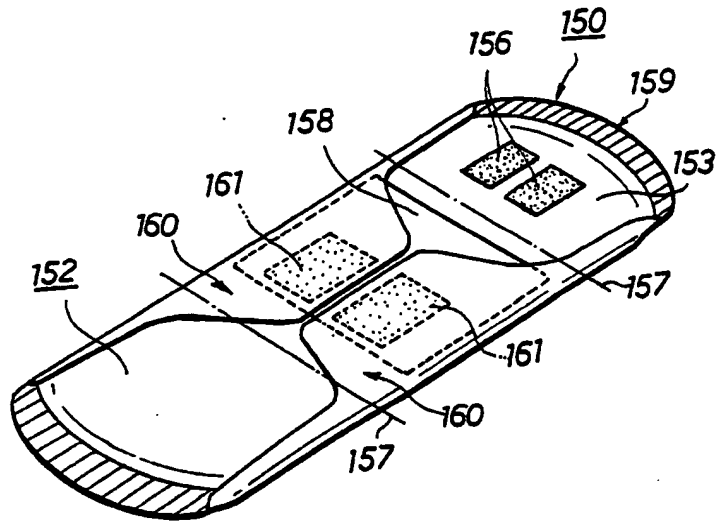


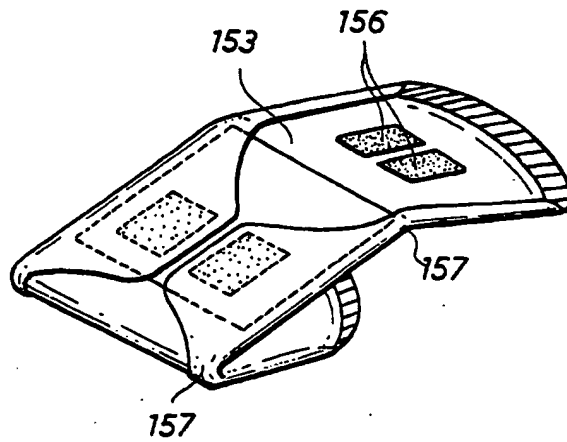
Fig. 27

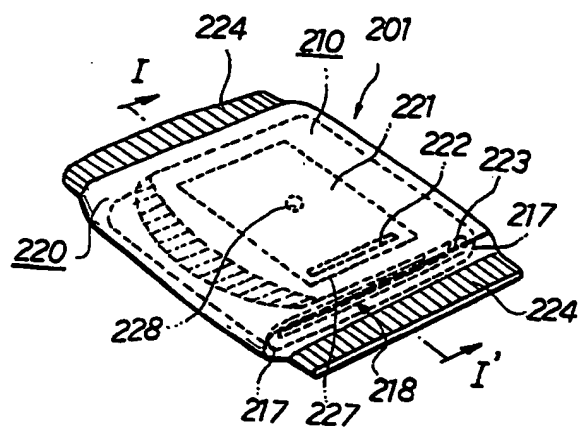
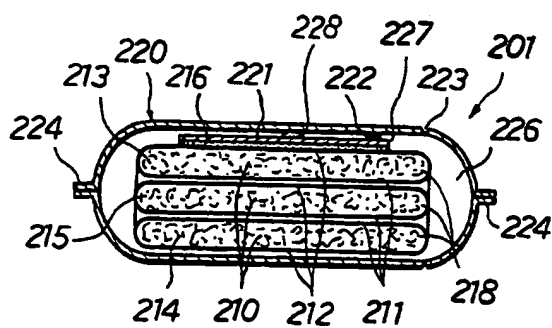


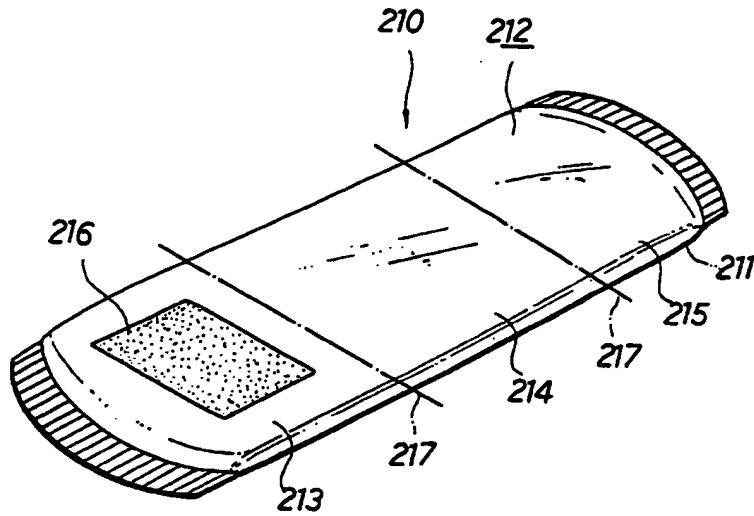
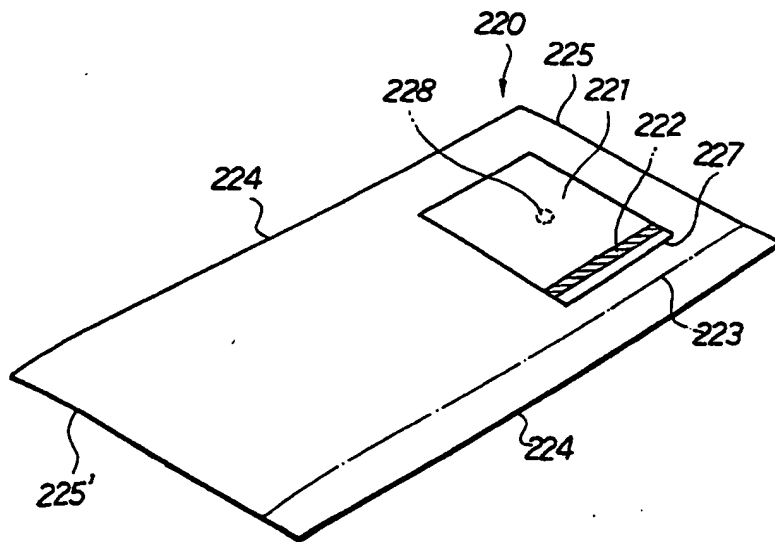
**Fig. 28**

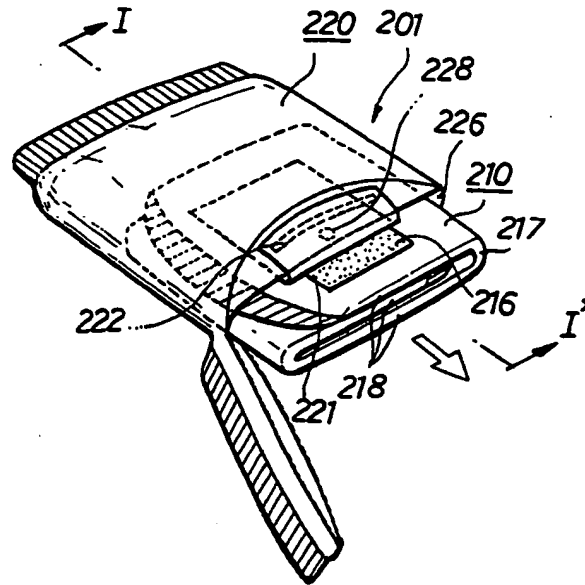
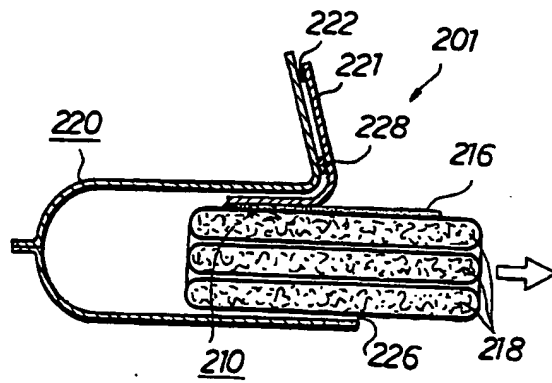


**Fig. 29**

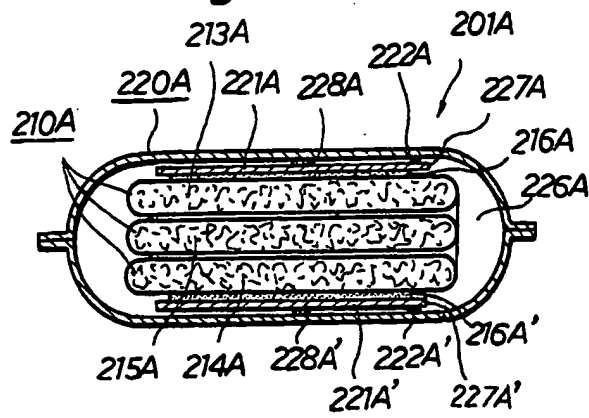
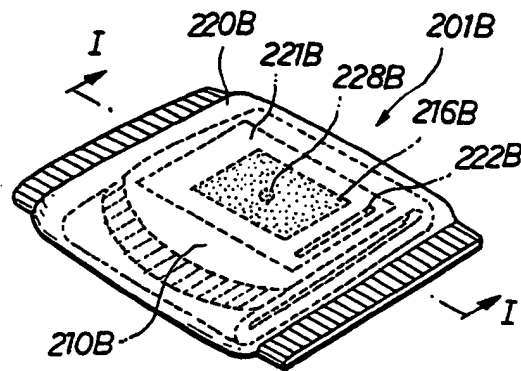
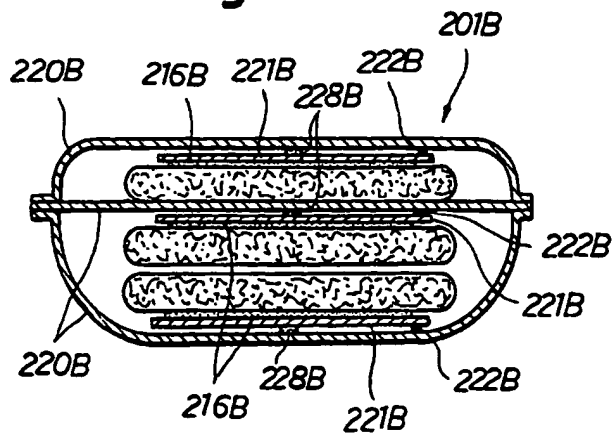


*Fig. 30A**Fig. 30B*

*Fig. 31**Fig. 32*

*Fig. 33A**Fig. 33B*



**Fig. 34****Fig. 35A****Fig. 35B**

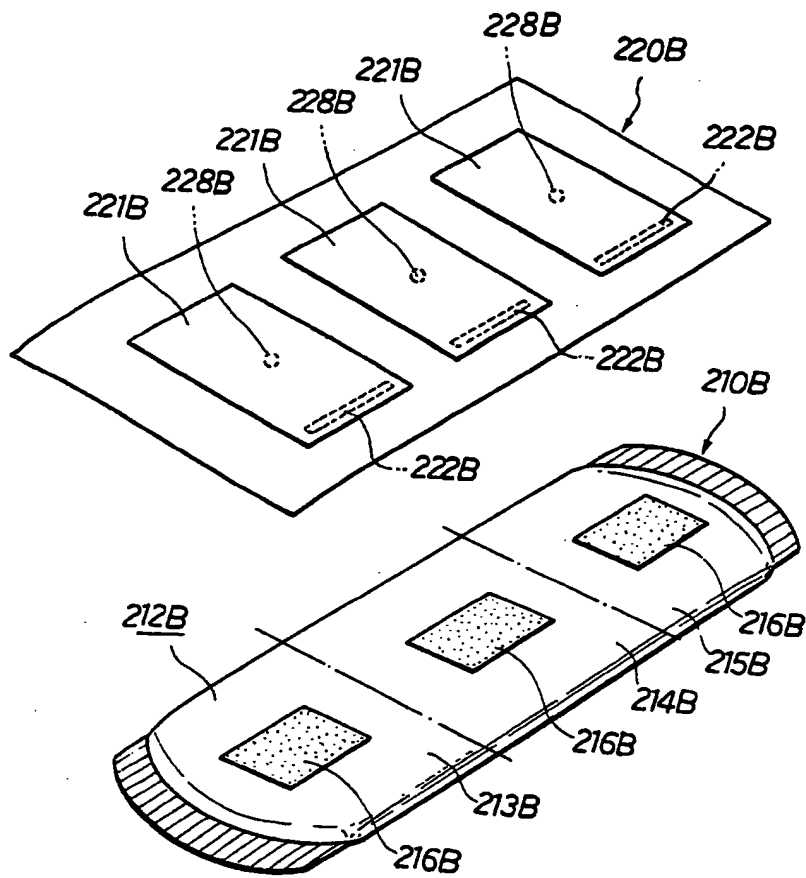
*Fig. 36*

Fig. 37

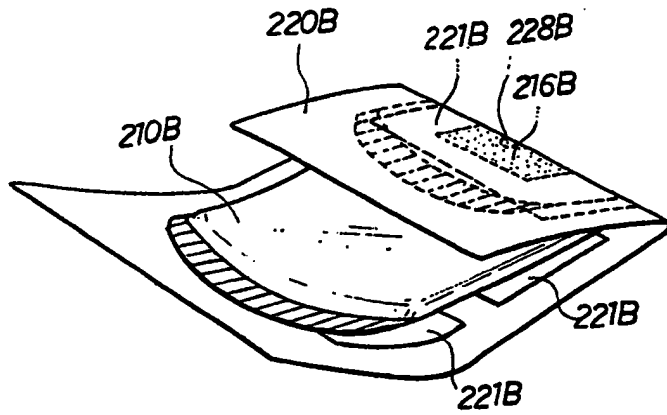
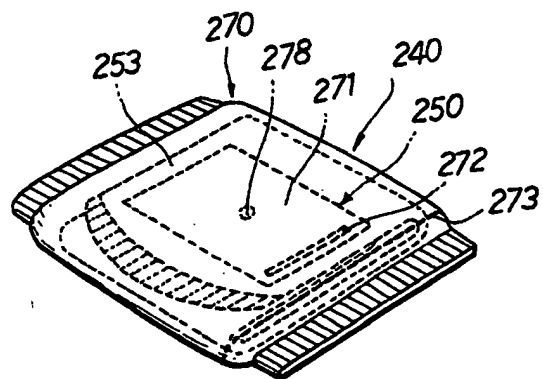


Fig. 38



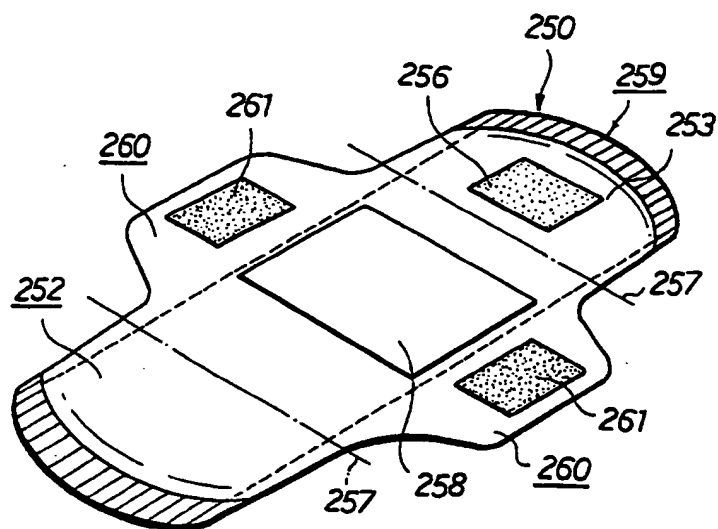
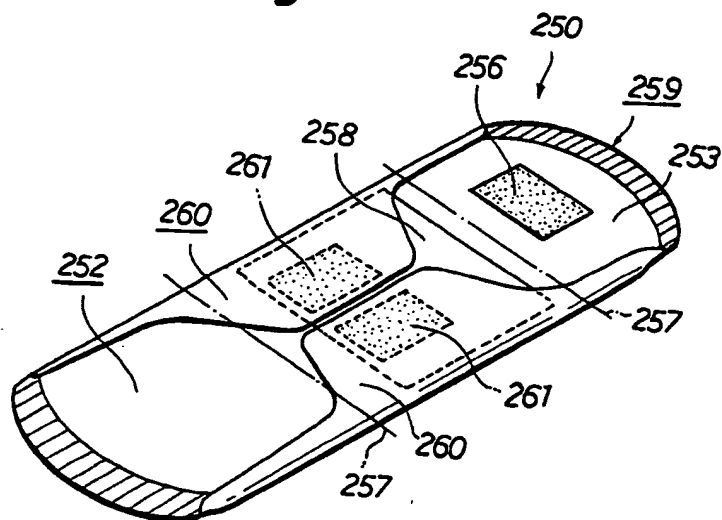
*Fig. 39**Fig. 40*

Fig. 41

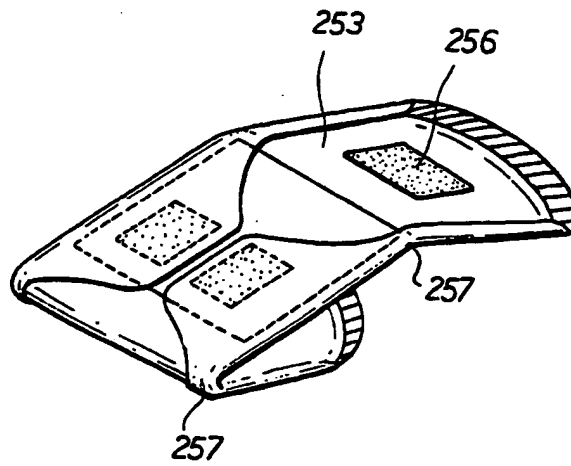


Fig. 42A

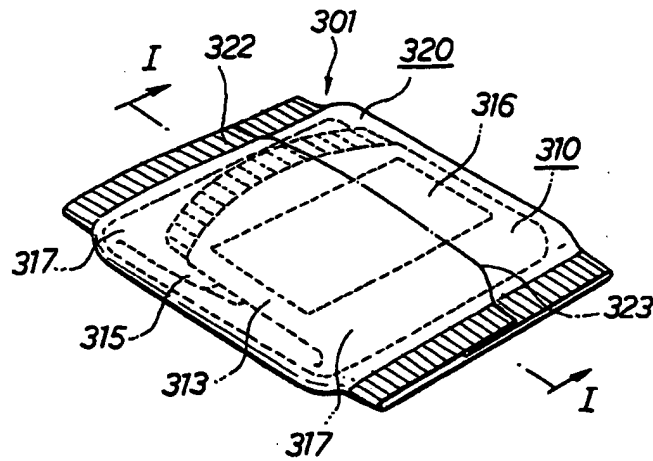


Fig. 42B

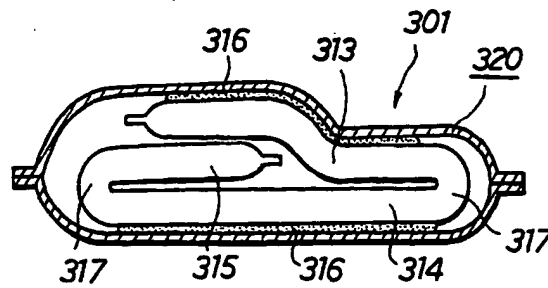


Fig. 43

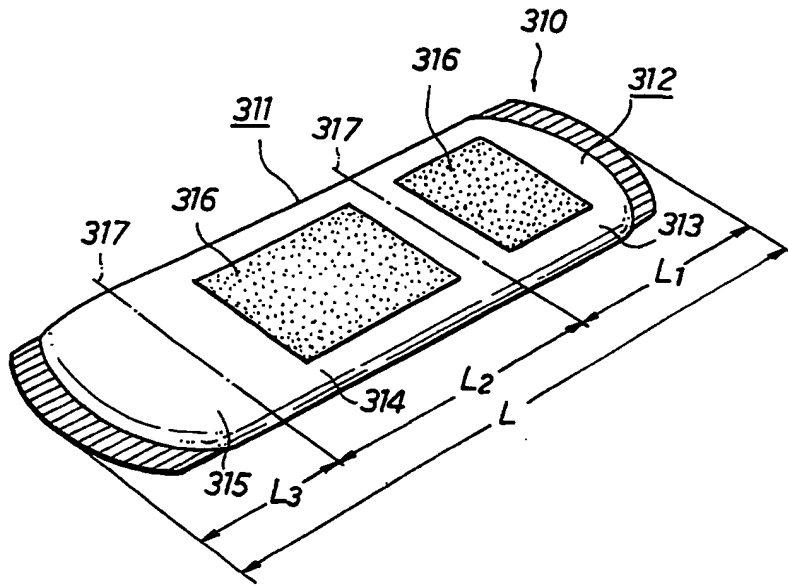


Fig. 44

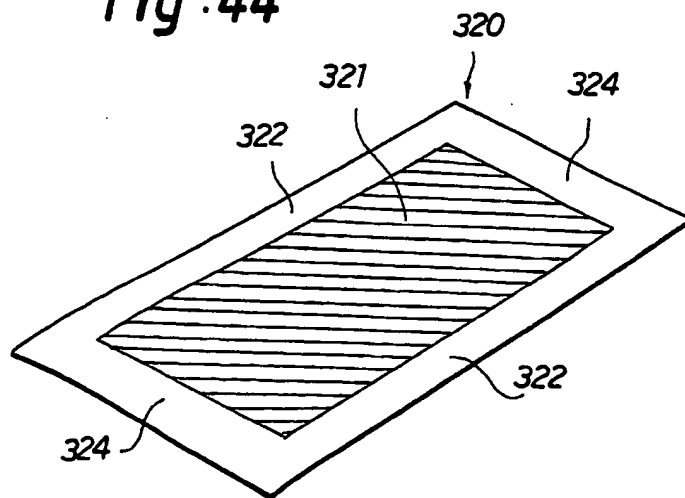


Fig. 45

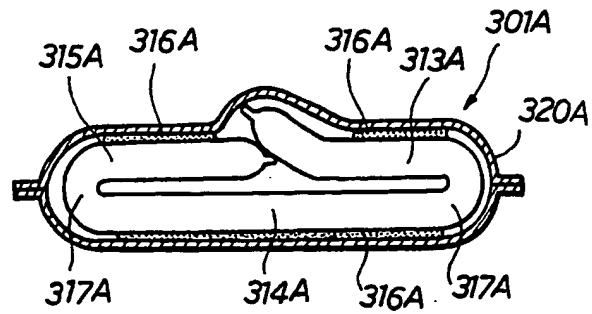


Fig. 46

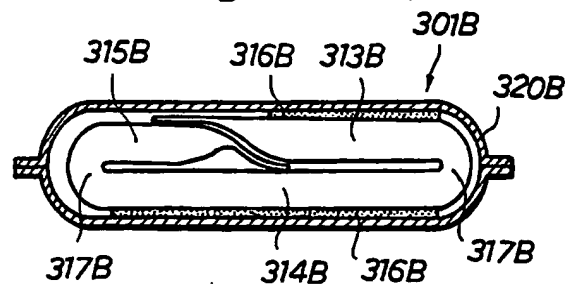
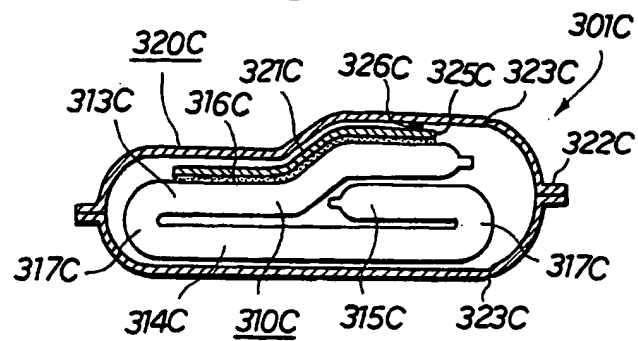
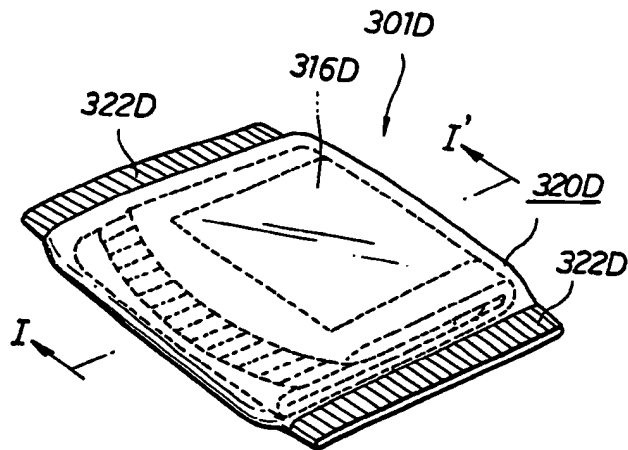


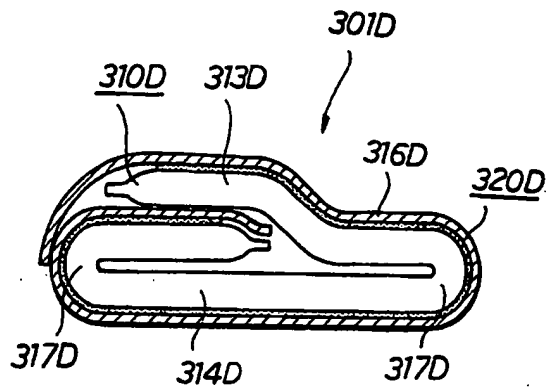
Fig. 47



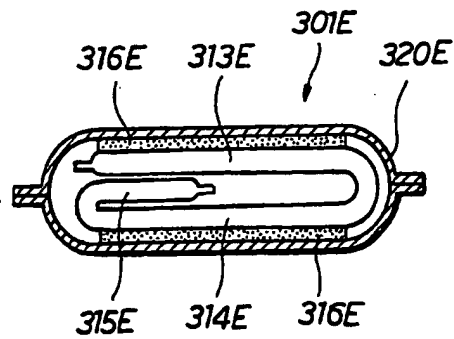
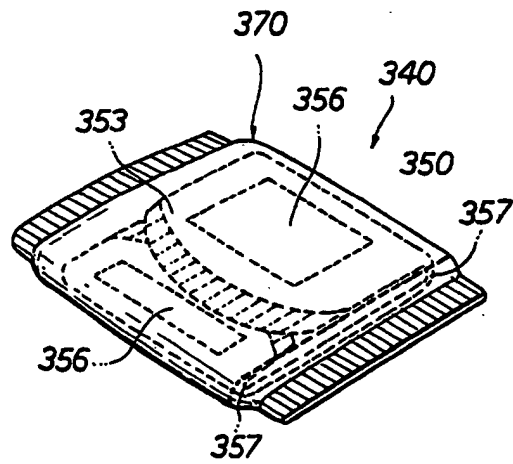
**Fig. 48A**

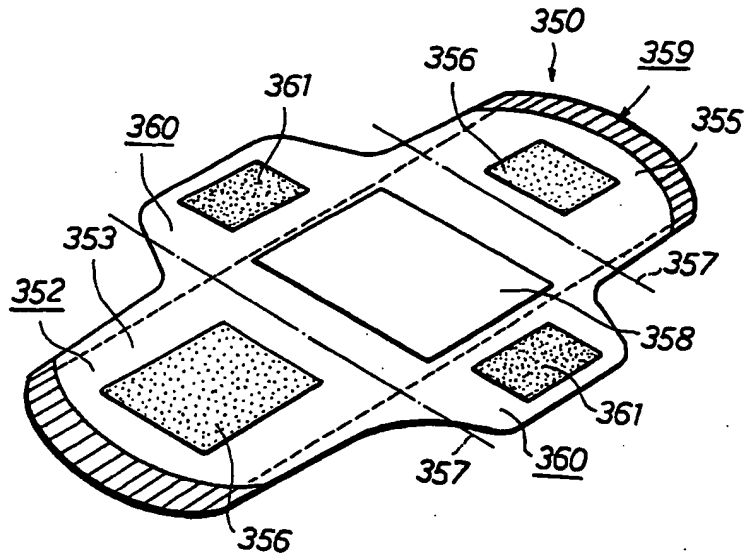
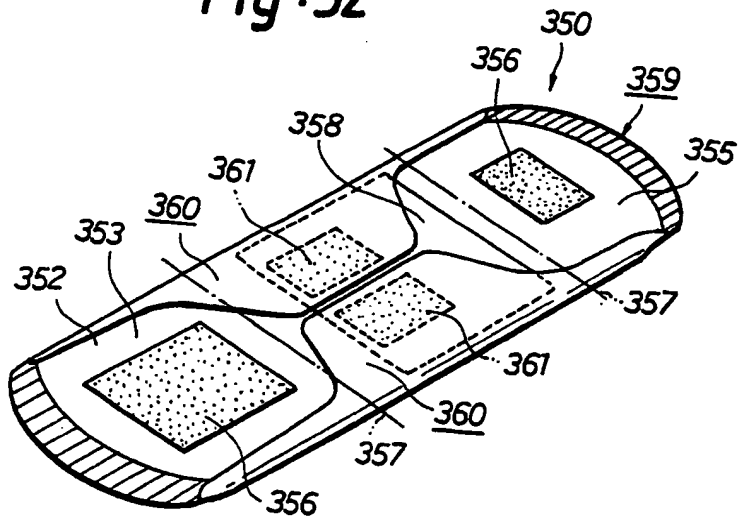


**Fig. 48B**

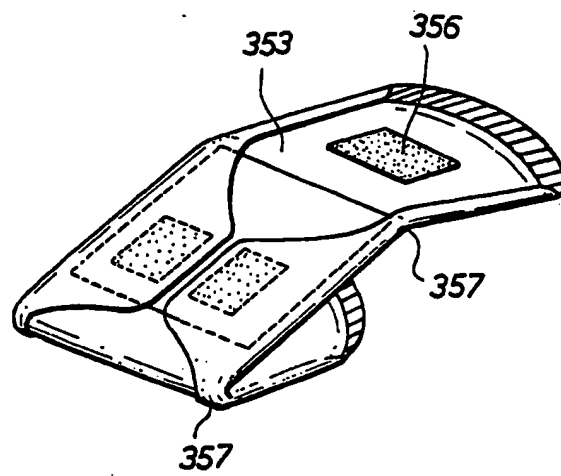




**Fig. 49****Fig. 50**

*Fig. 51**Fig. 52*

*Fig. 53*



## WRAPPING STRUCTURE FOR SANITARY NAPKIN

## BACKGROUND OF THE INVENTION

## [Field of the Invention]

This invention relates to a wrapping structure for a sanitary napkin in which a peelable sheet is not required to be discarded and there can be provided an adhesive layer on the sanitary napkin such that it has a sufficient amount of tucking force with respect to shorts.

## [Description of the Prior Art]

The sanitary napkin is usually provided with an adhesive agent for fixing the napkin to the shorts in order to prevent positional displacement of the napkin during use, and a peelable protective sheet for protecting the adhesive agent. For the use of a sanitary napkin of the type just described, it is necessary to peel off the peelable sheet and discard it. Therefore, it is not only troublesome for the user to peel off the peelable sheet every time the napkin is used but also annoying for the user to handle the peelable sheet after it has been peeled off. For example, if the peelable sheet is thrown into a toilet stool, there will be a possibility that the toilet stool is clogged.

Many proposals have been made with respect to a wrapping structure for a sanitary napkin having no peel-

able sheet. Several concrete examples are as follows:

(1) A wrapping structure for a sanitary napkin in which an adhesive layer of the sanitary napkin is directly in contact with polyolefine film (Japanese Utility Model Publication No. Sho 59-9615).

(2) A wrapping material in which a sanitary napkin is separately wrapped with wrapping material made of water soluble film and having a peelable layer at portion which contacts an adhesive layer of the sanitary napkin (Japanese Laid-Open Utility Model Application No. Sho 59-25371).

(3) A wrapping material in which its wrapping material has a pocket portion, and a sanitary napkin is received in this pocket portion such that an adhesive layer of the sanitary napkin exposes from an open end of the pocket portion, the exposed adhesive layer and a non-adhesive portion of the wrapping material being attached to each other (Japanese Laid-Open Utility Model Application No. Sho 57-34211).

(4) An individual wrapping material for a sanitary napkin, in which a wrapping material having a portion subjected to peeling treatment at that area which contacts an adhesive portion of the sanitary napkin comprises two sheets sealed at four sides thereof and provided with perforations for easy opening (Japanese Laid-Open Utility

Model Application No. Sho 58-179120).

(5) A wrapping material for a sanitary napkin, having a multilayer resin film as a wrapping material, which is provided with a mold removing type layer, which includes a thermoplastic resin material, at that area which contacts an adhesive layer of the sanitary napkin (Japanese Laid-Open Utility Model Application No. Sho 63-71025).

(6) A wrapping structure for a sanitary napkin which comprises a sheet of film of a thermoplastic resin which is chiefly composed of olefin copolymer and silicon copolymer (Japanese Laid-Open Utility Model Application No. Hei 2-35724).

(7) A wrapping structure for a sanitary napkin including a peeling area coated with silicon and a sealing area to be heat sealed (Japanese Laid-Open Utility Model Application No. Hei 4-11324).

(8) 1) A wrapping material for a sanitary napkin with flaps, in which the flaps are used as a protective element for covering and protecting an adhesive agent of the sanitary napkin (Japanese Laid-Open Utility Model Application No. Hei 3-46316).

2) A wrapping structure for a sanitary napkin with flaps, in which there is provided with a peelable sheet for protecting adhesive layers which are provided on the flap portions (Japanese Laid-Open Utility Model Applica-

tion No. Hei 2-17127).

3) A wrapping material for a sanitary napkin with flaps, in which adhesive layers formed on the flaps and an absorptive body are covered with a peelable sheet whose double surfaces are subjected to peeling treatment (Japanese Laid-Open Utility Model Application No. Sho 63-186645).

(9) 1) A wrapping structure for a napkin in which a sanitary napkin is wrapped with a wrapping material which is subjected to peeling treatment (Japanese Laid-Open Patent Application No. Hei 3-176376).

2) A wrapping structure in which a peelable sheet and a wrapping material are affixed such that the peelable sheet can be peeled off as soon as a napkin is taken out of a bag (Japanese Laid-Open Utility Model Application No. Hei 1-150919).

3) A wrapping structure for a napkin in which a peelable sheet is attached to and clamped by a mouth portion of a wrapping material such that the peelable sheet can be peeled off an adhesive portion as soon as a bag is opened (Japanese Laid-Open Utility Model Application No. Sho 60-79421).

4) A wrapping structure in which a peelable sheet can be automatically peeled off by opening a wrapping material and taking out a sanitary napkin therefrom

(Japanese Laid-Open Utility Model Application No. Sho 58-58029 and Japanese Laid-open Utility Model Application No. Hei 4-120733).

However, in the above wrapping material, the following problems (1) to (9), among others, are encountered.

(1) In the above wrapping material of (1), since the wrapping material for wrapping the napkin is a simple film (i.e., film unit itself), peelability is lowered with the passage of time with the result that the wrapping material is expanded or even torn when the napkin is taken out. If the thickness of film is increased in order to avoid that, there will be encountered the problems that the cost is increased and the wrapping material becomes difficult to be opened because the film itself becomes hard (i.e., the film loses its flexibility).

(2) In the above wrapping material of (2), since the film is low in strength, it is expanded or torn when the wrapping material is peeled off. If the film is increased in peelability in order to solve that problem, the solubility of film will be sacrificed with the result that when the wrapping material is thrown into a toilet stool, the toilet stool is choked.

(3) In the above wrapping material of (3), since the adhesive layer can be arranged only at a part of the napkin, the fixability is poor when the napkin is in use.



(4) In the above wrapping material of (4), since the wrapping material is inflated by air easily entered therein through the perforations, the sanitary napkin is inconvenient to carry with and the wrapping material is difficult to be opened.

(5) and (6) In the above wrapping materials of (5) and (6), since a substance containing peelable substance such as silicon resin or the like, or copolymer is used as the thermoplastic resin, a peeling substance is bled out and the peelability is likely to become unstable depending on temperature and moisture. Further, there is produced an area in the peelable surface where peeling force is partially decreased and it sometimes happens that the film cannot be peeled off.

Also, it often happens that the peeling substance bled out migrates to the adhesive surface, which makes it difficult to maintain the peeling stability, which tends to be lowered with the passage of time, under any circumstances.

(7) In the wrapping material of the above (8)-1), there are the same problems as in the above (5) and (6). Moreover, since a film having a preestablished peelable area and a preestablished sealable area is used, it is necessary to provide a heat sealing layer and a product is required to be wrapped always in a predetermined location.

Therefore, economical efficiency and production efficiency are decreased.

(8) In the wrapping material of the above (8)-1), it is still necessary to provide a peelable sheet for the adhesive layer of the absorptive body, and in the wrapping structure of the above (8)-2), a peelable sheet is necessary for the adhesive layer of the flap portion. None of them solves the problems associated with the peelable sheet. In the above wrapping material of the above (8)-3), since the adhesive layers of the flaps and absorptive body are covered with the double faced peelable sheet, the above-mentioned problems associated with the peelable sheet are not solved.

(9) In the wrapping structure of the above (9)-1) and (9)-2), since the wrapping material is opened and one end of the wrapping material is peeled off in such a manner as to turn the leaves of a book, it is difficult to take out the napkin rapidly from the wrapping material.

Also, in the wrapping structure of the above (9)-4), since the peelable sheet is peeled off the napkin after the wrapping material is opened by pulling the peelable sheet which is exposed outside from an opening port of the wrapping material, it is difficult to take out the napkin rapidly from the wrapping material.

In the wrapping structure of (9)-4), since the napkin

is pulled out of the wrapping material first with its front end or rear end, the napkin, which has been taken out of the wrapping material, is in a spread condition. Accordingly, the napkin cannot be taken out of the wrapping material in a folded condition rapidly.

That is, none of the structures of the above wrapping materials of (1) to (8) can satisfy both the peelability of the adhesive layers provided on the sanitary napkin relative to the peelable layer provided on the wrapping material, and the tucking force of the adhesive layers relative to the shorts while fulfilling the requirement of practical use.

Usually, a sanitary napkin is folded into two, three or four and then individually wrapped up with a wrapping material. The sanitary napkin, which is wrapped up with a wrapping material in a two- or four-folded condition, has the following problems.

That is, in the wrapping structure for a sanitary napkin having a peelable portion on its wrapping material, it can surely increase the area where the adhesive agent is applied if the sanitary napkin is folded into two, but only at the sacrifice of its compactness. If the sanitary napkin is folded into four, it can satisfy the requirement of its compactness but there arises the problem that the area where the adhesive agent is applied is

decreased because overlapped portions occur. Furthermore, the two- or four-folded sanitary napkin is difficult to be well fitted to a local portion of the napkin wearer because it becomes a V-shape or a W-shape when it is placed on the wearer.

Moreover, since the absorber is compressed at the folded part of the sanitary napkin, a discharged bodily liquid tends to disperse in a width direction. Also, the sanitary napkin has several grooves formed by folded wrinkles and extending in the width direction. In the two- or four-folded sanitary napkin, since a distance between a discharging point and the folded part is short, the discharged material tends to disperse in the width direction at the folded part or leak through the grooves, rather than dispersing in the longitudinal direction.

On the other hand, in the three-folded sanitary napkin, since the discharged material is absorbed in a central portion thus divided, it can offer a more efficient leak preventive ability than the two- or folded sanitary napkin.

Taking the above points into consideration, a three-folded and individually wrapping method is usually employed in the wrapping structure for a sanitary napkin.

However, in the normal wrapping structure for a three-folded sanitary napkin, the area where the adhesive

agent is applied is not large enough. Therefore, a wrapping structure for a sanitary napkin capable of satisfying the requirements for improving the anti-slippage ability and anti-leakage ability through effective utilization of an absorber, but without sacrificing the compactness, is demanded.

#### SUMMARY OF THE INVENTION

It is therefore a first object of the present invention to provide a wrapping structure for a sanitary napkin, in which a peelable sheet is not required to be discarded and the sanitary napkin is provided with an adhesive layer having a sufficient amount of a tucking force with respect to the shorts when the sanitary napkin is in use, and in which a wrapping material has an excellent peelability with respect to the adhesive layer.

It is a second object of the present invention to provide a wrapping structure for a sanitary napkin, in which a peelable sheet is not required to be discarded and the sanitary napkin can easily be taken out of a wrapping bag, and which is capable of contributing to an improvement of anti-leak ability, which is compact in size and which is easy to carry with.

After repeated hard work made by the present inventors for solving the above problems, they have accomplished the present invention by finding out the fact that

the above first object of the present invention can be achieved by fixing one end of a peelable sheet to a predetermined position of a wrapping structure.

According to one aspect of the present invention, there is provided a wrapping structure for a sanitary napkin comprising a sanitary napkin and a wrapping material for wrapping the sanitary napkin, an adhesive layer provided on a non-contacting surface of the sanitary napkin being detachably adhered to a peelable sheet which is fixed to an inner surface of the wrapping material; the sanitary napkin being folded in a longitudinal direction thereof to form folding portions; an outlet, which is formed by opening the wrapping material and adapted to take out the sanitary napkin therefrom, being provided along a longitudinal side edge of the sanitary napkin or along the folding portions; at least one end portion of the peelable sheet being fixed to an inner surface of the wrapping material at an area in the vicinity of the outlet (hereinafter sometimes referred to as "the first invention"). In this specification, "the non-contacting surface of the napkin" refers to the surface of the napkin which does not contact the user's skin.

From another aspect of the present invention, there is also provided a wrapping structure for a sanitary napkin comprising a sanitary napkin and a wrapping materi-

al for wrapping the sanitary napkin, an adhesive layer provided on a non-contacting surface of the sanitary napkin being detachably adhered to a peelable sheet which is fixed to an inner surface of the wrapping material; the sanitary napkin being divided into three portions, i.e., a front portion, a central portion and a rear portion, in a longitudinal direction thereof by folding portions which are provided in a width direction thereof, such that the front portion and the rear portion are different in dimensional area from each other, the sanitary napkin being folded along the folding portions such that the front portion and the rear portion are overlapped with each other (hereinafter sometimes referred to as "the second invention").

The wrapping structure according to the first invention comprises a sanitary napkin folded in a longitudinal direction thereof and wrapped up with a wrapping material, an adhesive layer on the sanitary napkin being detachably adhered to a peelable sheet which is fixed to the wrapping material. Before the use of the sanitary napkin (i.e., when the sanitary napkin is in storage), the adhesive layer provided on the sanitary napkin is fully covered with the peelable sheet which is fixed to the wrapping material. For the use of the sanitary napkin, the wrapping material is opened to form an outlet and the sanitary

napkin is taken out through the outlet. By doing this, the adhesive layer is peeled off the peelable sheet. Therefore, the sanitary napkin having the adhesive layer thus exposed is readily adhered to the shorts.

The wrapping structure according to the second invention comprises a sanitary napkin folded into three in a longitudinal direction thereof and wrapped up with a wrapping material, an adhesive layer on the sanitary napkin being detachably adhered to a peelable portion of the wrapping material. Before the use of the sanitary napkin (i.e., when the sanitary napkin is in storage), the adhesive layer provided on the sanitary napkin is fully covered with the peelable sheet of the wrapping material. For the use of the sanitary napkin, the wrapping material is opened to take out the sanitary napkin therefrom. By doing this, the adhesive layer is peeled off the peelable sheet. Therefore, the sanitary napkin having the adhesive layer thus exposed is readily adhered to the shorts.

In the wrapping structure for a sanitary napkin according to the first invention, the sanitary napkin is provided at its wide range of area the adhesive layer so that it may have a sufficient amount of tucking force with respect to the shorts when in use, and the adhesive layer is readily peeled off the wrapping material. More specifically, the wrapping structure for a sanitary napkin



according to the first invention has, among others, the following technical effects (1) to (9).

(1) The wrapping material is not expanded (i.e., the wrapping material does not get loosened) nor torn.

(2) A sound is small when the bag is peeled off.

(3) The wrapping material is not contracted by heat.

(4) The wrapping material can easily be peeled off the adhesive layer.

(5) A plurality of adhesive portions can be provided.

(6) The time and labor for peeling off the peelable sheet can be saved when the sanitary napkin is in use. Particularly, the peelable sheets, which are used in a normal napkin with flaps, provided on the flap portions, etc. are not required to be discarded, and therefore, it never happens that a toilet stool is choked with the peelable sheet which would otherwise be thrown into the toilet stool.

(7) The adhesive layer can be provided on the sanitary napkin over a wide range of area so that it may provide a sufficient amount of fixing force with respect to the shorts.

(8) In the case where the adhesive portion is formed of adhesive agent which is peelable at a laminated portion, the wrapping material is not required to be peeled off. Moreover, since no adhesive layer is formed on the

wrapping material, the adhesive portion can be adhered to the undergarment when in use.

(9) The wrapping structure can be made small and thus compact. It is not necessary that a fixedly attached bag (wrapping material) is peeled off the napkin by turning the bag. By simply withdrawing the napkin from the firmly attached bag, the napkin can be peeled off the peelable sheet in a one-touch manner while maintaining the folded condition of the napkin.

In the wrapping structure for a sanitary napkin according to the second invention, the peelable sheet is not required to be discarded and the sanitary napkin can easily be taken out of the wrapping bag. Moreover, it can contribute to the improvement of liquid leak preventive ability. In addition, it is compact and easy to carry with. More specifically, the wrapping structure for a sanitary napkin according to the second invention has, among others, the following technical effects (1) to (6).

(1) The time and labor for peeling off the peelable sheet can be saved when the sanitary napkin is in use.

(2) It never happens that a toilet stool is choked with the peelable sheet which would otherwise be thrown into the toilet stool.

(3) Since the folding portions are not in contact

with the discharging portion and the napkin keeps the shape of a horizontal "V" when in use, the leak preventive effect is great.

(4) The wrapping structure can be made small in thickness.

(5) Since the central area can be made large, the absorber can effectively be used.

(6) Since the overlapped portion between the front portion and the rear portion can be reduced, the area where the adhesive agent is applied can be increased.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1A is a perspective view showing a first embodiment of a wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 1B is a sectional view taken on line I-I' of the wrapping structure of Fig. 1A;

Fig. 2 is a bottom view of the sanitary napkin of Fig. 1;

Fig. 3 is a perspective view of a wrapping material which is shown in Fig. 1;

Fig. 4A is a perspective view showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 1, and Fig. 4B is a sectional view taken on line I-I' of the wrapping structure of Fig. 4A;

Fig. 5A is a perspective view showing one mode of a

sanitary napkin which has been fully taken out of the wrapping structure of Fig. 1 by opening the wrapping structure, and Fig. 5B is a sectional view taken on line I-I' of the wrapping structure of Fig. 5A;

Fig. 6A is a sectional view [corresponding to Fig. 1B] showing a second embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 6B is a sectional view [corresponding to Fig. 4B] showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 6A;

Fig. 7A is a sectional view [corresponding to Fig. 1B] showing a third embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 7B is a sectional view [corresponding to Fig. 4B] showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 7A;

Fig. 8A is a sectional view [corresponding to Fig. 1B] showing a fourth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 8B is a sectional view [corresponding to Fig. 4B] showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 8A;

Fig. 9A is a perspective view showing a fifth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 9B is a sectional view taken on line I-I' of the wrapping structure of Fig. 9A;

Fig. 10 is a perspective view of a sanitary napkin and a wrapping material which are shown in Figs. 9A and 9B;

Fig. 11 is a generally perspective view showing one mode for forming the wrapping structure of Figs. 9A and 9B;

Fig. 12 is a perspective view showing a sixth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention);

Fig. 13 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 12;

Fig. 14 is a generally perspective view showing one mode of the sanitary napkin of Fig. 14 with its flaps folded inwardly;

Fig. 15 is a generally perspective view showing one mode of folding the sanitary napkin of Fig. 14 into three;

Fig. 16A is a perspective view showing a seventh embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 16B is a sectional view taken on line I-I' of the

wrapping structure of Fig. 16A;

Fig. 17 is a bottom view of a sanitary napkin which is shown in Fig. 16;

Fig. 18 is a perspective view of a wrapping material which is shown in Fig. 16;

Fig. 19A is a perspective view showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 16, and Fig. 19B is a sectional view taken on line I-I' of the wrapping structure of Fig. 19A;

Fig. 20A is a perspective view showing one mode of a sanitary napkin fully taken out of the wrapping structure of Fig. 16 by opening the wrapping structure, and Fig. 20B is a sectional view taken on line I-I' of the wrapping structure of Fig. 20A;

Fig. 21 is a sectional view [corresponding to Fig. 16B] showing an eighth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention);

Fig. 22 is a sectional view [corresponding to Fig. 16B] showing a ninth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention);

Fig. 23A is a perspective view showing a tenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and

Fig. 23B is a sectional view taken on line I-I' of the wrapping structure of Fig. 23A;

Fig. 24 is a perspective view of a sanitary napkin and a wrapping material which are shown in Figs. 23A and 23B;

Fig. 25 is a generally perspective view showing one mode of forming a wrapping structure which is shown in Figs. 23A and 23B;

Fig. 26 is a perspective view showing an eleventh embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention);

Fig. 27 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 26;

Fig. 28 is a generally perspective view showing one mode of the sanitary napkin of Fig. 27 but with the flaps folded;

Fig. 29 is a generally perspective view showing one mode of folding the sanitary napkin of Fig. 28 into three;

Fig. 30A is a perspective view showing a twelfth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 30B is a sectional view taken on line I-I' of the wrapping structure of Fig. 30A;

Fig. 31 is a bottom view of a sanitary napkin which is shown in Fig. 30;

Fig. 32 is a perspective view of a wrapping material which is shown in Fig. 30;

Fig. 33A is a perspective view showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 30, and Fig. 33B is a sectional view taken on line I-I' of the wrapping structure of Fig. 33A;

Fig. 34 is a sectional view [corresponding to Fig. 30B] showing a thirteenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention);

Fig. 35A is a perspective view showing a fourteenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention), and Fig. 35B is a sectional view of the wrapping structure of Fig. 35A;

Fig 36 is a perspective view of a sanitary napkin and a wrapping material which are shown in Figs. 35A and 35B;

Fig. 37 is a generally perspective view showing one mode of forming the wrapping structure of Figs. 35A and 35B;

Fig. 38 is a perspective view showing a fifteenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (first invention);

Fig. 39 is a bottom view of a sanitary napkin for the



use in the wrapping structure of Fig. 38;

Fig. 40 is a generally perspective view showing one mode of the sanitary napkin of Fig. 39 but with the flaps folded inwardly;

Fig. 41 is a generally perspective view showing one mode of folding the sanitary napkin of Fig. 40 into three;

Fig. 42A is a perspective view showing a sixteenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention), and Fig. 42B is a sectional view taken on line I-I' of the wrapping structure of Fig. 42A;

Fig. 43 is a bottom view of a sanitary napkin which is shown in Fig. 42;

Fig. 44 is a perspective view of a wrapping material which is shown in Fig. 42;

Fig. 45 is a sectional view showing a seventeenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention);

Fig. 46 is a sectional view showing an eighth embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention);

Fig. 47 is a sectional view showing a seventeenth embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention);

Fig. 48A is a perspective view showing a twentieth

embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention), and Fig. 48B is a sectional view taken on line I-I' of the wrapping structure of Fig. 48A;

Fig. 49 is a sectional view showing a twenty-first embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention);

Fig. 50 is a perspective view showing a twenty-second embodiment of the wrapping structure for a sanitary napkin according to the present invention (second invention);

Fig. 51 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 50;

Fig. 52 is a generally perspective view showing one mode of the sanitary napkin of Fig. 51 but with the flaps folded; and

Fig. 53 is a generally perspective view showing one mode of folding the sanitary napkin of Fig. 52 into three.

#### DETAILED DESCRIPTION OF THE EMBODIMENT

Several embodiments of the first invention (first aspect of the present invention) will now be described in detail with reference to the accompanying drawings. It should be understood, however, that the present invention is not limited to these embodiments.

Fig. 1A is a perspective view showing a first embodiment of a wrapping structure for a sanitary napkin

according to the present invention, Fig. 1B is a sectional view taken on line I-I' of the wrapping structure of Fig. 1A, Fig. 2 is a bottom view showing the sanitary napkin of Fig. 1, and Fig. 3 is a perspective view of a wrapping material of Fig. 1. Fig. 4A is a perspective view showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 1, Fig. 4B is a sectional view taken on line I-I' of the wrapping structure of Fig. 4A, Fig. 5A is a perspective view showing one mode of the sanitary napkin which has been fully taken out of the wrapping structure of Fig. 1 by opening the wrapping structure, and Fig. 5B is a sectional view taken on line I-I' of the wrapping structure of Fig. 5A.

A wrapping structure 1 for a sanitary napkin according to this embodiment of Figs. 1A and 1B comprises a sanitary napkin 10 and a wrapping material 20 for wrapping the sanitary napkin 10. An adhesive layer 16 provided on a non-contacting surface 12 of the sanitary napkin 10 is detachably adhered to a peelable sheet 21 which is fixed to an inner surface of the wrapping material 20. The sanitary napkin 10 is folded in its longitudinal direction to form folding portions 17. There is provided an outlet 26, which is formed by opening the wrapping material 20, along a longitudinal side edge 18 of the sanitary napkin 10 and adapted to take out the sanitary napkin 10

therefrom. One end portion 27 of the peelable sheet 21 is fixed to an inner surface of the wrapping material 20 at an area in the vicinity of the outlet 26.

More specifically, the wrapping structure 1 for a sanitary napkin according to this embodiment is constructed such that the sanitary napkin 10 is folded along the folding portions 17 which divides the sanitary napkin 10 into three generally equal parts, i.e., a front portion 13, a central portion 14 and a rear portion 15, in a longitudinal direction thereof, toward the side of a skin contacting surface 11 of the central portion 14 first with the rear portion 15 and then with the front portion 13, and such folded sanitary napkin 10 is wrapped up with the wrapping material 20 such that the adhesive agent 16 contacts the peelable sheet 21 and opposite side edge portions 24 and opposite end edge portions 25 (see Fig. 3) of the wrapping material 20 are fixed. The front portion 13 is located forwardly of the user when the sanitary napkin 10 is in use.

The opposite side edge portions 24 and opposite end edge portions 25 of the wrapping material 20 are connected together by heat sealing. In order to form the outlet 26, a plurality of perforations 23 are formed in the surface of the sanitary napkin 10 along one longitudinal side edge 18 thereof.

As shown in Fig. 2, the sanitary napkin 10, which is wrapped up with the wrapping structure of the present invention, is provided at the front portion 13 in a non-contacting surface 12 with the adhesive layer 16. The sanitary napkin 10 is a normal one in which the skin contacting surface 11 is formed of a liquid permeable sheet material and the non-contacting surface 12 is formed of a liquid impermeable sheet material, and there is provided a liquid retentive absorber between the skin contacting surface 11 and the non-contacting surface 12.

The adhesive layer 16 is formed, for example, by applying an adhesive agent directly to the non-contacting surface 12 or applying an adhesive agent first to a wrapping film which is subjected to peeling treatment, and then transferring the same to the non-contacting surface 12. As the adhesive agent forming the adhesive portion, there is used one holding a two-phase block structure of a styrene phase and a rubber phase, chiefly composed, for example, of a styrene block polymer, a tackifier, and a softener.

Examples of the styrene block polymer may include styrene-ethylene-butylene-styrene block copolymer (SEBS), style-isoprene-styrene block copolymer (SIS), styrene-butadiene-styrene block copolymer (SBS), styrene-ethylene-propylene-styrene copolymer (SEPS), and the like.

These styrene block polymers are block copolymers in which the molecular weight of the styrene portion is preferably 7000 to 20000 in styrene portion and preferably 35000 to 70000 in rubber portion.

As examples of the tackifier, there can be listed C<sub>5</sub> series petroleum resin, C<sub>9</sub> series petroleum resin, C<sub>5</sub>/C<sub>9</sub> series petroleum resin, polyterpene resin as copolymer of  $\alpha$  pinene,  $\beta$  pinene and dipentene, rosin series resin, hydro-generation-based additive of them, and the like, whose softening point is 80°C or more and whose molecular weight is 400 to 2000.

As examples of the softener, there can be listed processed oil, various kinds of plasticizer, polybutene, liquid resin, and the like whose softening point is 10°C or less and whose average molecular weight is 200 to 700.

The tackifier particularly preferably has the following composition.

Styrene series block polymer	100 weight parts
Tackifier	150 to 200 weight parts, or 300 to 500 weight parts
Softener	30 to 150 weight parts

As shown in Fig. 3, the wrapping material 20 has the peelable sheet 21 fixed to that portion thereof which corresponds to the adhesive portion 16 of the sanitary napkin 10 through a fixture portion 22.

As the wrapping material 20, it is preferable to use a polyolefine film having a thickness of 5  $\mu\text{m}$  to 20  $\mu\text{m}$ .

The characteristic portion in the wrapping structure 1 for a sanitary napkin according to this embodiment will be described in more detail. In the wrapping structure 1 for a sanitary napkin according to this embodiment, the sanitary napkin 10 is folded in a longitudinal direction thereof to form the folding portions 17, and an outlet 26 is formed along the longitudinal side edge 18 of the sanitary napkin 10 by opening the wrapping material 20 along the perforations 23 and adapted to take out the sanitary napkin 10 therefrom, one end portion 27 of the peelable sheet 21 being fixed to an inner surface of the wrapping material 20 at an area in the vicinity of the outlet 26.

As the peelable sheet 21, it is preferable to use one which is obtained by applying a peeling agent to a base material of the peelable sheet 21.

As preferable examples of the base material of the peelable sheet 21, there can be listed a film or non-woven fabric, paper, composite material of them, and the like, which are composed of polypropylene, low density polyethylene, polyvinyl alcohol, and the like, and whose thickness is 5  $\mu\text{m}$  to 50  $\mu\text{m}$ .

As the peeling agent, those selected from silicon

series, fluororesin series, isocyanate series, and the like are preferable. Particularly, as the peeling agent, it is preferable to use one obtainable by applying one selected from the silicon series to the base material of the peelable sheet 21 and drying the same by heating, or spraying the same onto the base material in order to form a thin film thereon.

The fixture portion 22 is formed, for example, by adhesive agent or heat sealing. As the adhesive agent, one chiefly composed of a styrene series block polymer is used as in the case with the adhesive layer 16. In the case where the fixture portion 22 is formed by heat sealing, it is preferable to use the polypropylene film as both the wrapping material and the base material of the peeling sheet.

Also, in the wrapping structure for a sanitary napkin according to the present invention, the outlet 26 may be provided along the folding portions 17 which are formed by folding the sanitary napkin. However, in the case where the napkin is folded into three as in this embodiment, the outlet 26 should not be provided along the end portion (end portion on the side of the front portion 13) in the longitudinal direction of the exposed napkin in view of easiness of taking out the napkin.

With respect to the peelable sheet 21 and the adhe-



sive layer 16, it is preferable to select them such that 180° peel strength determined according to a measuring method, which will be described below, will become, preferably, 30 g to 90 g/50 mm.

In a combination of the adhesive agent and the peelable sheet, which enables to provide the above-mentioned 180° peel strength, the shearing strength reaches several grams/50 mm to several hundred kilograms/50 mm if the wrapping structure is the normal one in which the peelable sheet is fixed to the entire surface of the wrapping material. Therefore, the adhesive agent and the peelable sheet are difficult to peel off. If the arrangement is made such that the shearing strength is reduced in order to enhance an easy peel-off, there arises another inconvenience in that the adhesive layer and the peelable sheet are easily peeled off during the storage of the wrapping structure (before the use of the sanitary napkin), with the result that the adhesive layer adheres to other area or portion than the peelable sheet.

In the case where the fixture portion of the peelable sheet is provided on the inner surface of the wrapping material on the opposite side to the outlet 26, the shearing strength becomes much larger than 180° peel strength which is obtainable when the peelable sheet fixed, through the fixture portion, to the inner surface

of the wrapping material on the side where the napkin is taken out as in the present invention. As a matter of fact, in the normal combination of the adhesive agent and the peelable sheet, a hard attempt for peeling off the adhesive agent and the peelable sheet will result in breakage of the fixed bag.

<180° peel strength (adhesive strength)>

An adhesive agent was applied onto a polyethylene terephthalate film 50  $\mu$ m in thickness, and the same was pressure attached to a stainless plate (sus302) by a single reciprocal movement (back and forth) of a rubber roller of 2 kg. The 180° peel strength at this time was measured.

For the use of the sanitary napkin 10, first, as shown in Figs. 4A and 4B, the wrapping structure 1 is opened, through the perforations 23 provided on the wrapping material 20, to form the outlet 20, and then, the sanitary napkin 10 is taken out of the wrapping material 20 through the outlet 26. As shown in Figs. 5A and 5B, when the sanitary napkin 10 is withdrawn in a direction as indicated by an arrow, the peelable sheet 21 is automatically peeled off the adhesive layer 16.

Since the wrapping structure for a sanitary napkin according to the present invention is designed such that the sanitary napkin is withdrawn from the longitudinal

side edge or folding portions of the sanitary napkin as mentioned above, the sanitary napkin can be taken out in its folded condition and therefore, there is no possibility that the adhesive layer is inadvertently adhered to other part than the peelable sheet during the course of taking out the sanitary napkin.

The wrapping structure 1 for a sanitary napkin according to this embodiment is formed in the following manners.

In order to form the wrapping structure 1 for a sanitary napkin according to this embodiment, first, the sanitary napkin of Fig. 2 is folded into three toward the skin contacting surface 11 side of the central portion 14 along the folding portions 17, first with the rear portion 15 and then with the front portion 13. Subsequently, the adhesive layer 16 provided on the non-contacting surface 12 side of the front portion 13 of the sanitary napkin which has been folded into three is brought into contact with the peelable sheet 21 which is fixed to the wrapping material 20, then the wrapping material 20 is folded such that opposite end edge portions 25 and 25' (see Fig. 3) are present on the side of the front portion 13 of the sanitary napkin 10, and finally the opposite side edge portions 24 and end edge portions 25 are jointed by heat sealing or the like.

Further embodiments of the present invention will now be described with reference to Figs. 6 to 8. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 6A is a sectional view [corresponding to Fig. 1B] showing a second embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 6B is a sectional view [corresponding to Fig. 4B] showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 6A. Fig. 7A is a sectional view [corresponding to Fig. 1B] showing a third embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 7B is a sectional view [corresponding to Fig. 4B] showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 7A. Fig. 8A is a sectional view [corresponding to Fig. 1B] showing a fourth embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 8B is a sectional view [corresponding to Fig. 4B] showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 8A.

A wrapping structure 1A for a sanitary napkin according to the second embodiment of Fig. 6A includes an

adhesive layer 16A' also provided on a non-contacting surface 12A side of a central portion 14A of a sanitary napkin 10A, and a peelable sheet 21A extends from an outlet 26A over opposite two surfaces in an inner surface of a wrapping material 20A (which covers the other longitudinal side edge 18A' of the sanitary napkin 10A) and contacts the adhesive layer 16A', too.

For the use of the sanitary napkin, as shown in Fig. 6B, the wrapping material 20 is opened and the sanitary napkin 10A is withdrawn in a direction as indicated by an arrow. As a result, the peelable sheet 21A, which is in contact with the adhesive layer 16A, is peeled off the adhesive layer 16A thereby allowing the sanitary napkin 10A to be taken out of the wrapping material 20A. Then, the peelable sheet 21A, which is in contact with the adhesive layer 16A', is peeled off the adhesive layer 16A' so that the sanitary napkin can be used.

A wrapping structure 1B for a sanitary napkin according to the third embodiment of Fig. 7B includes an additional adhesive layer 16B' provided on a non-contacting surface 12B side of a central portion 14B of a sanitary napkin 10B. A peelable sheet 21B covers the other longitudinal side edge 18B' of the sanitary napkin 10B and contacts the adhesive layer 16B'. The peelable sheet 21B is attached to an inner surface of the wrapping

material 20B. Specifically, at two opposite spots in the inner surface of the wrapping material 20B, that is, on the front portion 13B side and the central portion 14B side of the sanitary napkin 10B, opposite end portions 27B and 27B' of the peelable sheet 21B are fixed to the inner surface at an area in the vicinity of an outlet portion 26B through fixture portions 22B and 22B'.

For the use of the sanitary napkin, as shown in Fig. 7B, the wrapping material 20B is opened to form the outlet 26B and the sanitary napkin 10B is withdrawn in a direction as indicated by an arrow. As a result, the peelable sheets 21B, which are in contact with the adhesive layers 16B and 16B', are automatically peeled off, respectively, thereby allowing the sanitary napkin 10B to be taken out of the wrapping material 20B.

In the wrapping structure 1C for a sanitary napkin according to the first embodiment of Fig. 8A, an adhesive layer 16C' is also provided on a non-contacting surface 12C side of a central portion 14C of a sanitary napkin 10C. Peelable sheets 21C and 21C' are provided respectively on two opposite spots in an inner surface of a wrapping material 20C, that is, a front portion 13C side and a central portion 14C side of the sanitary napkin 10C. One end portions of the peelable sheets 21C and 21C' are fixed to the inner surface of the wrapping material 20C at

an area in a vicinity of an outlet 26C through fixture portions 22C and 22C'.

For the use of the sanitary napkin, as shown in Fig. 8B, the wrapping material 20C is opened to form the outlet 26C and the sanitary napkin 10C is withdrawn in a direction as indicated by an arrow. As a result, the peelable sheets 21C, 21C' which are in contact with the adhesive layers 16C and 16C', are automatically peeled off, respectively, thereby allowing the use of the sanitary napkin 10C.

Next, a fifth embodiment of a wrapping structure for a sanitary napkin according to the present invention will be described with reference to Figs. 9 to 11. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 9A is a perspective view showing the fifth embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 9B is a sectional view taken on line I-I' of the wrapping structure of Fig. 9A, Fig. 10 is a perspective view of a sanitary napkin and a wrapping material which are shown in Figs. 9A and 9B, and Fig. 11 is a general perspective view showing one mode of forming the wrapping structure of Figs. 9A and 9B.

In a wrapping structure 1D for a sanitary napkin

according to the fifth embodiment of Figs. 9A and 9B, a non-contacting surface 12D of a sanitary napkin 10D is brought into contact with a wrapping material 20D, and a sanitary napkin 10D and the wrapping material 20D are integrally folded in an overlapped condition.

Specifically, as shown in Fig. 10, the sanitary napkin 10D has three adhesive layers 16D which are provided respectively on its front portion 13D, central portion 14D and rear portion 15D on the non-contacting surface 12D side, while the wrapping material 20D has three peelable sheets 21D fixed respectively to three places thereof through fixture portions 22D in such a manner as to correspond to the adhesive layers 16D. As shown in Fig. 11, the non-contacting surface 12D of the sanitary napkin 10D is brought into contact with the wrapping material 20D such that the peelable sheets 21D are brought into contact with the adhesive layers 16D, respectively, and then the sanitary napkin 10D and the wrapping material 20D are integrally folded in an overlapped condition.

By virtue of the above-mentioned construction, even if a plurality of adhesive layers 16D are provided over a wide range of the non-contacting surface 12D of the sanitary napkin 10D, the whole adhesive layers 16D can be protected by the peelable sheets 21D, and in addition, the desired effects of the present invention can be exhibited.



For the use of the sanitary napkin 10D, as in the above-mentioned embodiments, the wrapping structure is opened and the sanitary napkin is taken out. In the case where the construction of this embodiment is employed, it is preferable in view of practical use that a non-woven material is used for the topsheet of the sanitary napkin.

Next, a sixth embodiment of a wrapping structure for a sanitary napkin according to the present invention will be described with reference to Figs. 12 to 15. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 12 is a perspective view showing the sixth embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 13 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 12. Fig. 14 is a general perspective view showing one mode of the sanitary napkin of Fig. 13 but with the flaps folded, and Fig. 15 is a general perspective view showing one mode of folding the sanitary napkin of Fig. 14 into three.

In the wrapping structure 40 for a sanitary napkin according to the sixth embodiment of Fig. 12, a sanitary napkin 50 includes a napkin body 59 and a pair of flaps 60 extending in a width direction thereof from opposite

longitudinal side edge portions thereof, an adhesive layer 56 provided on a front portion 53 of the sanitary napkin 50 being adhered to a peelable sheet 71 which is fixed to a wrapping material 70 through a fixture portion 72.

Specifically, as shown in Fig. 13, the sanitary napkin 50 has adhesive layers 61 each provided on a generally central portion of each flap 60 and a peelable portion 58 provided on the napkin body 59 on a non-contacting surface 52 side of a central portion 54 thereof. In the wrapping structure for a sanitary napkin according to this embodiment, as shown in Fig. 14, the pair of flaps 60 are folded toward the non-contacting surface 52 side of the napkin body 59 such that the adhesive layers 61 are brought into contact with the peelable portion 58, and then, as shown in Fig. 15, the sanitary napkin 50 with the flaps 60 thus folded is folded into three along folding portions 57 such that the front portion 53 is exposed, and finally the sanitary napkin 50 is substantially tightly wrapped up with the wrapping material 70 such that the peelable sheet 71 is brought into contact with the exposed adhesive layer 56 of the front portion 53.

For the use of the sanitary napkin 50, as in the above-mentioned embodiments, the sanitary napkin is taken out and the adhesive layers 61 of the flaps 60 are peeled off the peelable portion 58, thereby allowing the use of

the sanitary napkin.

Next, a still further embodiment of the present invention will be described with reference to Figs. 16 to 20. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 16A is a perspective view showing a seventh embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 16B is a sectional view taken on line I-I' of the wrapping structure of Fig. 16A, Fig. 17 is a bottom view of a sanitary napkin which is shown in Fig. 16, and Fig. 18 is a perspective view of a wrapping material which is shown in Fig. 16. Fig. 19A is a perspective view showing one mode of taking out a sanitary napkin by opening the wrapping structure of Fig. 16, Fig. 19B is a sectional view taken on line I-I' of the wrapping structure of Fig. 19A, Fig. 20A is a perspective view showing one mode of the sanitary napkin which has been fully taken out of the wrapping structure of Fig. 16 by opening the wrapping structure, and Fig. 20B is a sectional view taken on line I-I' of the wrapping structure of Fig. 20A.

A wrapping structure 101 for a sanitary napkin according to this embodiment of Figs. 16A and 16B comprises a sanitary napkin 110 and a wrapping material 20 for

wrapping the sanitary napkin 110, adhesive layers 116 provided on a non-contacting surface 112 of the sanitary napkin 110 being detachably adhered to peelable sheets 121 fixed to an inner surface of the wrapping material 120. The sanitary napkin 110 is folded in its longitudinal direction to form folding portions 117. There is further provided an outlet 126 which is formed by opening the wrapping material 120 along perforations 123 and through which the sanitary napkin 110 is taken out. Two peelable sheets 121 are provided on one surface in the inner surface of the wrapping material 120 from the outlet 126 toward the opposite side to the outlet 126. End portions 127 of the respective peelable sheets 121 on the outlet 126 side are fixed to the inner surface of the wrapping material 120 through the fixture portions 122.

As shown in Fig. 17, the sanitary napkin 110 is provided with two rectangular adhesive layers 116 on a front portion 113 on the side of the non-contacting surface 112 side. Owing to the provision of the two adhesive layers 116, there is formed a portion having no adhesive layer at a length-wise central portion of the non-contacting surface 112. Therefore, there is no such inconvenience as conventionally had, that the respective adhesive layers are adhered during the course of wearing the sanitary napkin and therefore they must be peeled off.

As shown in Fig. 18, the wrapping material 120 has two peelable sheets 121 which are fixed thereto through the fixture portions 122 in such a manner as to correspond to the adhesive layers 116.

For the use of the sanitary napkin 110, first, as shown in Figs. 19A and 19B, the wrapping structure 101 is opened by opening the perforations 123 which are provided on the wrapping material 120, thereby to form the outlet 126, and the sanitary napkin 110 is withdrawn through the outlet 126 in a direction as indicated by an arrow. By doing this, as shown in Figs. 20A and 20B, the peelable sheet 121 is automatically peeled off the adhesive layer 116 so that the sanitary napkin 110 can be taken out, while prohibiting the detachment of the peelable sheet 121 from the wrapping material 120 and without allowing one end of the peelable sheet 121 from coming out of the outlet 126. At this time, since it does not occur that the peelable sheet is detached from the wrapping material and the one end (unfixed end portion) of the peelable sheet 121 comes out of the outlet 126, the user is not required to take the trouble for returning the peelable sheet into the wrapping material.

Since the wrapping structure for a sanitary napkin according to this embodiment is constructed such that the sanitary napkin can be withdrawn first with the longitudi-

nal side edge or folding portions of the sanitary napkin as mentioned above, the sanitary napkin can be taken out in its folded condition. Accordingly, it never occurs that the adhesive layer adheres to other part than the peelable sheets during the course of taking out the sanitary napkin. In addition, the peelable sheet does not come out of the wrapping material.

Yet further embodiments of the present invention will now be described with reference to Figs. 21 and 22. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 21 is a sectional view [corresponding to Fig. 16B] showing an eighth embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 22 is a sectional view [corresponding to Fig. 16B] showing a ninth embodiment of a wrapping structure for a sanitary napkin according to the present invention.

In a wrapping structure 101A for a sanitary napkin according to the eighth embodiment of Fig. 21, two of the peelable sheets 121A are provided on each of two opposing surfaces in the inner surface of the wrapping material 120A.

Specifically, the wrapping structure 101A for a sanitary napkin has additional adhesive layers 116A' which

are also provided on a non-contacting surface 112A side of a central portion 114A of a sanitary napkin 110A. Two peelable sheets 121A and 121A' are provided on each of two opposing surfaces (that is, front portion 113A side and central portion 114A side of the sanitary napkin 110A) in an inner surface of the wrapping material 120A. One end portions 127A and 127A' of the peelable sheets 121A and 121A are fixed to the inner surface of the wrapping material 120A through fixture portions 122A and 122A.

In a wrapping structure 101B for a sanitary napkin according to the seventh embodiment of Fig. 22, the peelable sheet 121B, which is provided on the opposite side to the outlet 126B extends over to a central portion of that surface opposing one surface in the inner surface of the wrapping material from the one surface through the opposite side to the outlet 126B.

Specifically, an adhesive layer 116B' is also provided on the non-contacting surface 112B side of the central portion 114B of the sanitary napkin 110B. A peelable sheet 121B' extends over two opposing surfaces in an inner surface of a wrapping material 120B from an outlet 126B (i.e., in such a manner as to cover the other side edge 118B' of the sanitary napkin 110B in a longitudinal direction thereof). The peelable sheet 121B' is also in contact with the adhesive layer 116B'.

Next, an additional embodiment of a wrapping structure for a sanitary napkin according to the present invention will be described with reference to Figs. 23 to 25. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 23A is a perspective view showing an additional embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 23B is a sectional view taken on line I-I' of the wrapping structure of Fig. 23A, Fig. 24 is a perspective view of a sanitary napkin and a wrapping material which are shown in Figs. 23A and 23B, and Fig. 25 is a general perspective view showing one mode of forming the wrapping structure of Figs. 23A and 23B.

In the wrapping structure 101 for a sanitary napkin according to the embodiment of Figs. 23A and 23B, a non-contacting surface 112C of a sanitary napkin 110C is brought into contact with a wrapping material 120C, and the sanitary napkin 110C and the wrapping material 120C are integrally folded in an overlapped condition.

Specifically, as shown in Fig. 24, a sanitary napkin 110C has adhesive layers 116C which are provided on a front portion 113C, a central portion 114C and a rear portion 115C on a non-contacting surface 112C side there-



of, while a wrapping material 120C has peelable sheets 121C which are fixed to six spots thereof through fixture portions 122C in such a manner as to correspond to the adhesive layers 116C. As shown in Fig. 25, the non-contacting surface 112C of the sanitary napkin 110C is brought into contact with the wrapping material 120C such that the peelable sheets 121C are brought into contact with the adhesive layers 116C, respectively, and then the sanitary napkin 110C and the wrapping material 120C are integrally folded in an overlapped condition.

By virtue of the above-mentioned construction, even if a plurality of adhesive layers 116C are provided over a wide range of the non-contacting surface 112C of the sanitary napkin 110C, the whole adhesive layers 116C can be protected by the peelable sheets 121C, and in addition, the desired effects of the present invention can be exhibited.

For the use of the sanitary napkin 110C, as in the above-mentioned embodiments, the wrapping structure is opened and the sanitary napkin is taken out. In the case where the construction of this embodiment is employed, it is preferable in view of practical use that a non-woven material is used for the topsheet of the sanitary napkin.

Next, an eleventh embodiment of a wrapping structure for a sanitary napkin according to the present invention

will be described with reference to Figs. 26 to 29. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 26 is a perspective view showing the eleventh embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 17 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 26. Fig. 28 is a general perspective view showing one mode of the sanitary napkin of Fig. 27 but with the flaps folded, and Fig. 29 is a general perspective view showing one mode of folding the sanitary napkin of Fig. 28 into three.

In the wrapping structure 140 for a sanitary napkin according to the eleventh embodiment of Fig. 26, a sanitary napkin 150 includes a napkin body 159 and a pair of flaps 160 extending in a width direction thereof from opposite longitudinal side edge portions thereof, adhesive layers 156 provided on a front portion 153 of the sanitary napkin 150 being adhered to two peelable sheets 171 which are fixed to a wrapping material 170 through fixture portion 172.

Specifically, as shown in Fig. 27, the sanitary napkin 150 has adhesive layers 161 each provided on a generally central portion of each flap 160 and a peelable

portion 158 provided on a central portion 154 of the napkin body 159 on a non-contacting surface 152 side thereof. In the wrapping structure for a sanitary napkin according to this embodiment, as shown in Fig. 28, the pair of flaps 160 are folded toward the non-contacting surface 152 side of the napkin body 159 such that the adhesive layers 161 are brought into contact with the peelable portion 158, and then, as shown in Fig. 29, the sanitary napkin 150 with the flaps 160 thus folded is folded into three along folding portions 157 such that the front portion 153 is exposed, and finally the sanitary napkin 150 is substantially tightly wrapped up with the wrapping material 170 such that the peelable sheets 171 are brought into contact with the exposed adhesive layers 156 of the front portion 153.

For the use of the sanitary napkin 150, as in the above-mentioned embodiments, the sanitary napkin is taken out and the adhesive layers 161 of the flaps 160 are peeled off the peelable portion 158, thereby allowing the use of the sanitary napkin. Next, a further additional embodiment of the present invention will be described with reference to Figs. 30 to 33. It should be understood that those parts which are not particularly described in detail are the same as in the first embodiment.

Fig. 30A is a perspective view showing a twelfth

embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 30B is a sectional view taken on line I-I' of the wrapping structure of Fig. 30A, Fig. 31 is a bottom view of a sanitary napkin which is shown in Fig. 30, and Fig. 32 is a perspective view of a wrapping structure which is shown in Fig. 30. Fig. 33A is a perspective view showing one mode of taking out the sanitary napkin by opening the wrapping structure of Fig. 30, and Fig. 33B is a sectional view taken on line I-I' of the wrapping structure of Fig. 33A.

A wrapping structure 201 for a sanitary napkin according to this embodiment of Figs. 30A and 30B comprises a sanitary napkin 210 and a wrapping material 220 for wrapping the sanitary napkin 210, an adhesive layer 216 provided on a non-contacting surface 212 of the sanitary napkin 210 being detachably adhered to a peelable sheet 221 fixed to an inner surface of the wrapping material 220. The sanitary napkin 210 is folded in its longitudinal direction to form folding portions 217. There is further provided an outlet 226 which is formed by opening the wrapping material 220 along a longitudinal side edge 218 of the sanitary napkin 210. The peelable sheet 221 is fixed at an end portion 227 on the outlet side and a central portion thereof to the inner surface of the wrapping material through an end fixture portion 222

and a central fixture portion 228. The central fixture portion 228 is fixed at one point.

The term "central portion" used herein is not limited to a central portion of the peelable sheet. For example, in the case where a peelable sheet of the size capable of covering a side edge on the opposite side to the side edge 218 of the sanitary napkin is used, the central fixture portion may be provided on a central portion of one surface of the wrapping material. It may be designed such that the peelable sheet is fixed at one end portion thereof to the end fixture portion and folded back at the opposite side to the outlet, and the other end of the peelable sheet is fixed to the central fixture portion. It may also be designed such that the peelable sheet is fixed to the central fixture portion through other member such as a narrow ribbon like tape or the like which is provided in a parallel relation with the outlet at the central fixture portion. The above-mentioned "one point" is not particularly limited in size, etc.

As shown in Fig. 32, the wrapping material 220 has the peelable sheet 221 which is fixed to a portion corresponding to the adhesive portion 216 of the sanitary napkin 210 through the end fixture portion 222 and central fixture portion 228.

The end fixture portion 222 and central fixture

portion 228 are formed, for example, of an adhesive agent or heat sealing. As the adhesive agent, one chiefly composed of a styrene series block polymer is used as in the case with the adhesive layer 16. In the case where the end fixture portion 222 and central fixture portion 228 are formed by heat sealing, it is preferable to use the polypropylene film as both the wrapping material and the base material of the peeling sheet.

For the use of the sanitary napkin 210, first, as shown in Figs. 33A and 33B, the wrapping structure 201 is opened by opening the perforations 223 which are provided on the wrapping material 220, thereby to form the outlet 226, and the sanitary napkin 210 is withdrawn through the outlet 226 in a direction as indicated by an arrow. By doing this, the peelable sheet 221 is automatically peeled off the adhesive layer 216 so that the sanitary napkin 110 can be taken out. At this time, since it does not occur that the peelable sheet 221 is detached from the wrapping material and the one end (unfixed end portion) of the peelable sheet 221 comes out of the outlet 226 owing to the function of the end fixture portion 222 and central fixture portion 228, the user is not required to take the trouble for returning the peelable sheet into the wrapping material.

Next, a thirteenth embodiment of the present inven-

tion will be described with reference to Fig. 34. It should be understood that those parts which are not particularly described in detail are the same as in the above-mentioned embodiments.

Fig. 34 is a sectional view [corresponding to Fig. 30B] showing the thirteenth embodiment of a wrapping structure for a sanitary napkin according to the present invention.

In the wrapping structure 201A for a sanitary napkin according to the embodiment of Fig. 34, peelable sheets 221A and 221A' are provided on two opposing surfaces in an inner surface of the wrapping material 220A.

Specifically, an adhesive layer 216A' is also provided on a non-contacting surface 212A side of a central portion 214A of a sanitary napkin 210A, and peelable sheets 221A and 221A' are provided on two opposing surfaces (that is, front portion 213A side and central portion 214A side of the sanitary napkin 210A) in an inner surface of the wrapping material 220A. One end portions 227A and 227A' of the peelable sheets 221A and 221A' are fixed to the inner surface of the wrapping material 220A at an area in the vicinity of an outlet 226A through end fixture portions 222A and 222A' and central fixture portions 228A and 228A'.

Next, a fourteenth embodiment of a wrapping structure

for a sanitary napkin according to the present invention will be described with reference to Figs. 35 to 37.

Fig. 35A is a perspective view showing the fourteenth embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 35B is a sectional view taken on line I-I' of the wrapping structure of Fig. 35A, Fig. 36 is a perspective view of a sanitary napkin and a wrapping material which are shown in Figs. 35A and 35B, and Fig. 37 is a general perspective view showing one mode of forming the wrapping structure of Figs. 35A and 35B.

In the wrapping structure 201B for a sanitary napkin according to the embodiment of Figs. 35A and 35B, the non-contacting surface 212B of the sanitary napkin 210B is brought into contact with the wrapping material 220B, and the sanitary napkin 210B and the wrapping material 220B are folded so as to be integrally folded in an overlapped condition.

Specifically, as shown in Fig. 36, a sanitary napkin 210B has adhesive layers 216B which are provided on a front portion 213B, a central portion 214B and a rear portion 215B on a non-contacting surface 212B side thereof, while a wrapping material 220B has peelable sheets 221B which are fixed to three spots thereof through end fixture portions 222B and central fixture portions 228B in



such a manner as to correspond to the adhesive layers 216B. As shown in Fig. 37, the non-contacting surface 212B of the sanitary napkin 210B is brought into contact with the wrapping material 220B such that the peelable sheets 221B are brought into contact with the adhesive layers 216B, respectively, and then the sanitary napkin 210B and the wrapping material 220B are integrally folded in an overlapped condition.

By virtue of the above-mentioned construction, even if a plurality of adhesive layers 216B are provided over a wide range of the non-contacting surface 212B of the sanitary napkin 210B, the whole adhesive layers 216B can be protected by the peelable sheets 221B, and in addition, the desired effects of the present invention can be exhibited.

For the use of the sanitary napkin 210B, as in the above-mentioned embodiments, the wrapping structure is opened and the sanitary napkin is taken out. In the case where the construction of this embodiment is employed, it is preferable in view of practical use that a non-woven material is used for the topsheet of the sanitary napkin.

Next, a fifteenth embodiment of a wrapping structure for a sanitary napkin according to the present invention will be described with reference to Figs. 38 to 41.

Fig. 38 is a perspective view showing another embodi-

ment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 39 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 38. Fig. 40 is a general perspective view showing one mode of the sanitary napkin of Fig. 39 but with the flaps folded, and Fig. 41 is a general perspective view showing one mode of folding the sanitary napkin of Fig. 40 into three.

In the wrapping structure 240 for a sanitary napkin according to the embodiment of Fig. 38, a sanitary napkin 250 includes a napkin body 259 and a pair of flaps 260 extending in a width direction thereof from opposite longitudinal side edge portions thereof, adhesive layers 256 provided on a front portion 253 of the sanitary napkin 250 being adhered to peelable sheets 271 which are fixed to a wrapping material 270 through end fixture portions 272 and central fixture portions 278.

Specifically, as shown in Fig. 39, the sanitary napkin 250 has adhesive layers 261 each provided on a generally central portion of each flap 260 and a peelable portion 258 provided on a central portion 254 of the napkin body 259 on a non-contacting surface 252 side thereof. In the wrapping structure for a sanitary napkin according to this embodiment, as shown in Fig. 40, the pair of flaps 260 are folded toward the non-contacting

surface 252 side of the napkin body 259 such that the adhesive layers 261 are brought into contact with the peelable portion 258, and then, as shown in Fig. 41, the sanitary napkin 250 with the flaps 260 thus folded is folded into three along folding portions 257 such that the front portion 253 is exposed, and finally the sanitary napkin 250 is substantially tightly wrapped up with the wrapping material 270 such that the peelable sheets 271 are brought into contact with the exposed adhesive layers 256 of the front portion 253.

For the use of the sanitary napkin 250, as in the above-mentioned embodiments, the sanitary napkin is taken out and the adhesive layers 261 of the flaps 260 are peeled off the peelable portion 258, thereby allowing the use of the sanitary napkin.

The wrapping structure for a sanitary napkin according to the present invention is not limited to the above-mentioned embodiments. For example, the adhesive layers are not limited to rectangular in configuration but may also be linear, spiral, dots, etc., which are provided in parallel relation to the outlet. In the above-mentioned embodiments, the perforations are provided over the entire periphery of the wrapping structure, but they may be provided only on the upper surface or lower surface of the wrapping structure. It is not essential to take out the

sanitary napkin first with the side edge portion. It may be designed such that an outlet is formed along the folding portions so that the sanitary napkin can be taken out first with the folding portions. It may also be designed such that the peelable sheet is extended from the outlet and folded back at the middle of the extension so as to be fixed to the inner surface of the wrapping material.

Embodiments of the second invention (second aspect of the invention) will now be described in detail with reference to Figs. 42 to 53.

Fig. 42A is a perspective view showing a first embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 42B is a sectional view taken on line I-I' of the wrapping structure of Fig. 42A, Fig. 43 is a bottom view of a sanitary napkin which is shown in Fig. 42, and Fig. 44 is a perspective view of a wrapping material which is shown in Fig. 42.

A wrapping structure 301 for a sanitary napkin according to this embodiment of Figs. 42A and 42B comprises a sanitary napkin 310 and a wrapping material 320 for wrapping the sanitary napkin 310. An adhesive layer 316 provided on a non-contacting surface 312 of the sanitary napkin 310 is detachably adhered to a peelable portion 321 (see Fig. 44) which is fixed to an inner surface of the

wrapping material 320. The sanitary napkin 310 is divided, by folding portions 317 which are provided in a width direction thereof, into three parts of a front portion 313, a central portion 314 and a rear portion 315 in a longitudinal direction, such that the area of the front portion 313 is different from that of the rear portion 315. The sanitary napkin 310 is folded along the folding portions 317 such that the front portion 313 and the rear portion 315 are overlapped with each other.

More specifically, the wrapping structure 301 for a sanitary napkin according to this embodiment is constructed such that the sanitary napkin 310 is folded along the folding portions 317 which divides the sanitary napkin 310 into three parts of the front portion 313, the central portion 314 and the rear portion 315, in a longitudinal direction thereof, toward the side of a skin contacting surface 311 of the central portion 314 first with the rear portion 315 and then with the front portion 313, and such folded sanitary napkin 310 is wrapped up with the wrapping material 320 such that the adhesive layer 316 contacts the peelable sheet 321 and opposite side edge portions 322 and opposite end edge portions 324 (see Fig. 44) of the wrapping material 320 are fixed. The front portion 313 is located forwardly of the user when the sanitary napkin 310 is in use.

The opposite side edge portions 322 and opposite end edge portions 324 of the wrapping material 320 are connected together by heat sealing. The sanitary napkin is provided with a plurality of perforations 323 formed in a longitudinal direction thereof.

As shown in Fig. 43, the sanitary napkin 310, which is wrapped up by the wrapping structure of the present invention, is provided at the front portion 313 and the central portion 314 in a non-contacting surface 312 with the adhesive layer 316. The sanitary napkin 310 is a normal one in which the skin contacting surface 311 is formed of a liquid permeable sheet material and the non-contacting surface 312 is formed of a liquid impermeable sheet material, and there is provided a liquid retentive absorber between the skin contacting surface 311 and the non-contacting surface 312.

The adhesive layer 316 can be formed in the same manner as in the first embodiment using the same material.

As shown in Fig. 44, the wrapping material 320 has the peelable portion 321 which is provided on a portion thereof corresponding to the adhesive layer 316 of the sanitary napkin 310. It is acceptable as long as the peelable portion 321 is provided on at least a portion corresponding to the adhesive layer 316. Therefore, the peelable portion 321 may be provided on other portion than

that portion which corresponds to the adhesive layer 316.

As the wrapping material 320, it is preferable to use a polyolefine film having a thickness of 5  $\mu\text{m}$  to 20  $\mu\text{m}$ .

The peelable portion 321 is formed by applying a peeling agent or adhering a peelable tape to the inner surface of the wrapping material. As a peeling composition of the peeling agent or peelable tape, those selected from silicon resin series, fluororesin series, octadecylisocyanate series, and the like are preferable. Particularly, as the composition of the peeling agent, it is preferable to use one which is obtained by applying one selected from the silicon resin series and drying the same by heating, or spraying the same onto the inner surface of the wrapping material in order to form a thin film thereon.

It is preferable to use paper, polyolefine or polyester film or the like as the peelable tape. This peelable tape, i.e., paper, polyolefine or polyester film, is preferably attached to the wrapping material by heating, ultrasonic wave, or the like. Thus obtained peelable tape has a suitable degree of rigidity. Moreover, since this peelable tape is easy to open and excellent in thermal resistance, it is advantageous in view of production.

The characteristic portion in the wrapping structure 301 for a sanitary napkin according to this embodiment

will be described in more detail. In the wrapping structure 301 for a sanitary napkin according to this embodiment, the sanitary napkin 310 is folded along the folding portions 317 which divides the sanitary napkin 310 into three parts of the front portion 313, the central portion 314 and the rear portion 315, in a longitudinal direction thereof such that the area of the front portion 313 is different from that of the rear portion 315. Furthermore, the sanitary napkin 310 is folded along the folding portions 317 such that the front portion 313 and the rear portion 315 are partially overlapped with each other.

As shown in Fig. 43, it is desirable that the folding portions 317 satisfy the relation (1) to (3) set forth hereunder among the longitudinal length  $L_1$  of the sanitary napkin, the length  $L_2$  of the front portion and the length  $L_3$  of the rear portion.

$$(1) L_1 = 0.30L \text{ to } 0.45L$$

$$(2) L_2 = 0.35L \text{ to } 0.50L$$

$$(3) L_3 = 0.10L \text{ to } 0.30L$$

$$(\text{wherein: } L_1 + L_2 + L_3 = L, L_1 > L_3, L_1 + L_3 > L_2)$$

By virtue of the employment of the above-mentioned construction, there can be provided an adhesive layer(s) so that the sanitary napkin exhibits a sufficient amount of tucking force, the leak preventive effect can be improved because the folding portions are not present at



that portion which contacts a local portion of the user's body at the time of discharge, and there can be obtained the similar degree of compactness as the normal three-folded sanitary napkin.

For the use of the sanitary napkin 310, the wrapping structure 301 is opened by opening the perforations 323 which are provided on the wrapping material 320. Then, the sanitary napkin 310 is withdrawn from the wrapping material 320. As a result, the peelable sheet 21 is peeled off the adhesive layer 316, thereby allowing the use of the sanitary napkin 310.

The wrapping structure 301 for a sanitary napkin according to this embodiment is formed in the following manners.

In order to form the wrapping structure 301 for a sanitary napkin according to this embodiment, first, the sanitary napkin of Fig. 43 is folded into three toward the skin contacting surface 311 side of the central portion 314 along the folding portions 317, first with the rear portion 315 and then with the front portion 313. Subsequently, the adhesive layer 316 provided on the non-contacting surface 312 side of the front portion 313 of the sanitary napkin which has been folded into three is brought into contact with the peelable portion 321 of the wrapping material 320, then the wrapping material 320 is

folded into three such that the opposite end edge portions 324 are overlapped with each other, and finally the opposite side edge portions 322 and end edge portions 324 are jointed by heat sealing or the like.

Next, further embodiments of the present invention will be described with reference to Figs. 45 to 49. It should be understood that those parts which are not particularly described in detail are the same as in the above-mentioned sixteenth embodiment.

Fig. 45 is a sectional view showing a seventeenth embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 46 is a sectional view showing an eighteenth embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 47 is a sectional view showing a nineteenth embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 48A is a perspective view showing a twentieth embodiment of a wrapping structure for a sanitary napkin according to the present invention, Fig. 48B is a sectional view taken on line I-I' thereof, and Fig. 49 is a sectional view showing a twenty-first embodiment of a wrapping structure for a sanitary napkin according to the present invention.

In a wrapping structure 301A for a sanitary napkin according to the seventeenth embodiment of the present

invention which is shown in Fig. 45, the sanitary napkin 310A is folded such that only end portions of the front portion 313A and rear portion 315A are overlapped with each other, and adhesive layers 316A are provided on the front portion 313A, a central portion 314A and a rear portion 315A, respectively.

In a wrapping structure 301B for a sanitary napkin according to the eighteenth embodiment of the present invention which is shown in Fig. 46, a sanitary napkin 310B is designed such that a front portion 313B and a rear portion 315B become narrower (thinner) toward the end portions thereof, and these narrowed (thin) portions are overlapped with each other.

In a wrapping structure 301C for a sanitary napkin according to the nineteenth embodiment of the present invention which is shown in Fig. 47, a peelable portion 321C is formed by firmly fixing a peelable sheet 325C to an inner surface of the wrapping material 320C through a fixture portion 326C. Specifically, there is provided an outlet 326C for taking out the sanitary napkin 310C, the outlet 326C being formed by opening perforations 323C of the wrapping material 320C along the width direction of the sanitary napkin 310C. One end portion of the peelable sheet 325C is fixed to the inner surface of the wrapping material 320C at an area in the vicinity of the

outlet 326C.

As the peelable sheet 325C, it is preferable to use one which is obtained by applying a peeling agent to a base material of the peelable sheet.

As preferable examples of the base material of the peelable sheet 325C, there can be listed a film or non-woven fabric, paper, composite material of them, and the like, which are composed of polypropylene, low density polyethylene, polyvinyl alcohol, and the like, and whose thickness is 5  $\mu\text{m}$  to 50  $\mu\text{m}$ .

As the peeling agent, those selected from silicon series, fluororesin series, isocyanate series, and the like are preferable. Particularly, as the peeling agent, it is preferable to use one obtainable by applying one selected from the silicon resin series to the base material of the peelable sheet 325C and drying the same by heating, or spraying the same onto the base material in order to form a thin film thereon.

The fixture portion 326C is formed, for example, by adhesive agent or heat sealing. As the adhesive agent, one chiefly composed of a styrene series block polymer is used as in the case with the adhesive layer 316C. In the case where the fixture portion 326C is formed by heat sealing, it is preferable to use the polypropylene film as both the wrapping material and the base material of the

peeling sheet.

For the use of the sanitary napkin, the sanitary napkin 310C is withdrawn through the outlet 326C which is formed by opening the wrapping material 320C through the perforations 323C. As a result, the peelable sheet 21C which is in contact with the adhesive layer 316C, is automatically peeled off, thereby allowing the use of the sanitary napkin.

In a wrapping structure 301D for a sanitary napkin according to a twentieth embodiment of the present invention which is shown in Figs. 48A and 48B, a non-contacting surface 312D of the sanitary napkin 310D is brought into contact with a wrapping material 320D, the sanitary napkin 310D and the wrapping material 320D are integrally folded in an overlapped condition and each side of the wrapping material 320D is jointed.

In a wrapping structure 301E for a sanitary napkin according to the twenty-first embodiment of the present invention which is shown in Fig. 49, the sanitary napkin 310E is a thin type sanitary napkin, and the sanitary napkin is folded such that one end of a rear portion 315E is present in a generally middle part of a central portion 314.

Next, a twenty-second embodiment of a wrapping structure for a sanitary napkin according to the present inven-

tion will be described with reference to Figs. 50 to 53.

Fig. 50 is a perspective view showing the twenty-second embodiment of a wrapping structure for a sanitary napkin according to the present invention, and Fig. 51 is a bottom view of a sanitary napkin for the use in the wrapping structure of Fig. 50. Fig. 52 is a general perspective view showing one mode of folding flaps of the sanitary napkin of Fig. 51, and Fig. 53 is a general perspective view showing one mode of folding the sanitary napkin of Fig. 52 into three.

In a wrapping structure 340 for a sanitary napkin according to the twenty-second embodiment of Fig. 50, a sanitary napkin 350 comprises a napkin body 359 and a pair of flaps 360 extending in a width direction thereof from opposite longitudinal side edge portions thereof. An adhesive layer 356 provided on a front portion 353 of the sanitary napkin 350 and a peelable portion 371 of a wrapping material 370 are detachably adhered to each other.

Specifically, as shown in Fig. 51, the sanitary napkin 350 has adhesive layers 61 each provided on a generally central portion of each flap 360 and a peelable portion 358 provided on the napkin body 359 on a non-contacting surface 352 side of a central portion 354 thereof. In the wrapping structure for a sanitary napkin according to this embodiment, as shown in Fig. 52, the

pair of flaps 360 are folded toward the non-contacting surface 352 side of the napkin body 359 such that the adhesive layers 361 are brought into contact with the peelable portion 358, and then, as shown in Fig. 53, the sanitary napkin 350 with the flaps 360 thus folded is divided into three portions of the front portion 353, the central portion 354 and the rear portion 355 in the longitudinal direction by folding portions 357 which are provided in the width direction, such that an area of the front portion 353 is different from that of the rear portion 355. Then, the sanitary napkin 350 with the flaps 360 thus folded is folded into three along the folding portions 357 such that the adhesive layer 356 of the front portion 353 and the adhesive layer 356 of the rear portion 355 are exposed and one end portion of the front portion 353 and one end portion of the rear portion 355 are overlapped with each other. Finally the sanitary napkin 350 is substantially tightly wrapped up with the wrapping material 370 such that the peelable sheet 371 is brought into contact with the exposed adhesive layer 356.

For the use of the sanitary napkin 350, as in the above-mentioned embodiments, the sanitary napkin is taken out and the adhesive layers 361 of the flaps 360 are peeled off the peelable portion 358, thereby allowing the use of the sanitary napkin.

A wrapping structure for a sanitary napkin according to the present invention is not limited to the above-mentioned embodiments. For example, the adhesive layers are not limited to rectangular in configuration but may also be linear, spiral, dots, etc., which are provided in parallel relation to the outlet.



## CLAIMS

1. A wrapping structure for a sanitary napkin comprising a sanitary napkin and a wrapping material for wrapping said sanitary napkin, an adhesive layer provided on a non-contacting surface of said sanitary napkin being detachably adhered to a peelable sheet which is fixed to an inner surface of said wrapping material;

said sanitary napkin being folded in a longitudinal direction thereof to form folding portions;

an outlet, which is formed by opening said wrapping material and adapted to take out said sanitary napkin therefrom, being provided along a longitudinal side edge of said sanitary napkin or along said folding portions;

at least one end portion of said peelable sheet being fixed to an inner surface of said wrapping material at an area in the vicinity of said outlet.

2. A wrapping structure for a sanitary napkin as claimed in claim 1, in which said peelable sheet extends over two opposed surfaces in an inner surface of said wrapping material from said outlet.

3. A wrapping structure for a sanitary napkin as claimed in claim 2, in which opposite end portions of said peelable sheet are fixed to the inner surface of said wrapping

material.

4. A wrapping structure for a sanitary napkin as claimed in claim 1, in which said peelable sheet is provided on two opposed places in the inner surface of said wrapping material.
5. A wrapping structure for a sanitary napkin as claimed in claim 1, in which said sanitary napkin includes a napkin body, and a pair of flaps extending outwardly in a width direction thereof from opposite longitudinal side edge portions of said napkin body.
6. A wrapping structure for a sanitary napkin as claimed in claim 1, in which at least a non-contacting surface of said sanitary napkin is brought into contact with said wrapping material, and said sanitary napkin and said wrapping material are integrally folded in an overlapped condition.
7. A wrapping structure for a sanitary napkin as claimed in claim 1, in which a plurality of said peelable sheets are provided on at least one surface of the inner surface of said wrapping material in a straight line from said outlet toward the opposite side to said outlet, end por-

tions of said peelable sheets on the side of said outlet being fixed to the inner surface of said wrapping material.

8. A wrapping structure for a sanitary napkin as claimed in claim 7, in which said plurality of peelable sheets are provided on two opposed surfaces in the inner surface of said wrapping material.

9. A wrapping structure for a sanitary napkin as claimed in claim 7, in which said peelable sheet provided on the side opposite to the outlet extends from a central portion of one surface in the inner surface of said wrapping material to a central portion of the counterpart surface of said one surface through the opposite side to said outlet.

10. A wrapping structure for a sanitary napkin as claimed in claim 7, in which said sanitary napkin includes a napkin body, and a pair of flaps extending outwardly in a width direction thereof from opposite longitudinal side edge portions of said napkin body.

11. A wrapping structure for a sanitary napkin as claimed in claim 7, in which at least a non-contacting

surface of said sanitary napkin is brought into contact with said wrapping material, and said sanitary napkin and said wrapping material are integrally folded in an overlapped condition.

12. A wrapping structure for a sanitary napkin as claimed in claim 1, in which said peelable sheet is fixed at an end portion thereof on the side of said outlet and a central portion thereof to the inner surface of said wrapping material.

13. A wrapping structure for a sanitary napkin as claimed in claim 12, in which said peelable sheets are provided on two opposed surfaces in the inner surface of said wrapping material.

14. A wrapping structure for a sanitary napkin as claimed in claim 12, in which said central portion is fixed at one point.

15. A wrapping structure for a sanitary napkin as claimed in claim 12, in which said sanitary napkin includes a napkin body, and a pair of flaps extending outwardly in a width direction from opposite longitudinal side edge portions of said napkin body.

16. A wrapping structure for a sanitary napkin as claimed in claim 12, in which at least a non-contacting surface of said sanitary napkin is brought into contact with said wrapping material, and said sanitary napkin and said wrapping material are integrally folded in an overlapped condition.

17. A wrapping structure for a sanitary napkin comprising a sanitary napkin and a wrapping material for wrapping said sanitary napkin, an adhesive layer provided on a non-contacting surface of said sanitary napkin being detachably adhered to a peelable sheet which is fixed to an inner surface of said wrapping material;

said sanitary napkin being divided into three portions, i.e., a front portion, a central portion and a rear portion, in a longitudinal direction thereof by folding portions which are provided in a width direction thereof, such that an area of said front portion is different from that of said rear portion, said sanitary napkin being folded along said folding portions such that said front portion and said rear portion are overlapped with each other.

18. A wrapping structure for a sanitary napkin as claimed

in claim 17, in which said peelable portion is formed by fixing a peelable sheet to the inner surface of said wrapping material.

19. A wrapping structure for a sanitary napkin as claimed in claim 17, in which said sanitary napkin includes a napkin body, and a pair of flaps extending outwardly in a width direction from opposite longitudinal side edge portions of said napkin body.

20. A wrapping structure for a sanitary napkin as claimed in claim 17, in which at least a non-contacting surface of said sanitary napkin is brought into contact with said wrapping material, said sanitary napkin and said wrapping material are integrally folded in an overlapped condition, and at least one side of said wrapping material is fixed.

21. A wrapped sanitary napkin structure comprising an elongate sanitary napkin which is folded one or more times transverse to its length and is enclosed within a wrapping, the wrapping being constructed so that it may be opened or a portion removed along one edge to form an opening through which the sanitary napkin may be removed, an adhesive layer being provided on that surface of the sanitary napkin, in use, does not contact the skin of the user, the adhesive layer being detachably adhered to a peelable sheet which is connected to the internal surface of the wrapping, at least on that side which is closest to the said opening.

22. A wrapped sanitary napkin structure comprising an elongate sanitary napkin enclosed within a wrapping, an adhesive layer being provided on that surface of the sanitary napkin which, in use, does not contact the skin of the user, the adhesive layer being detachably adhered to a peelable sheet or layer connected to the internal surface of the wrapping, the sanitary napkin being folded twice in opposite senses transverse to its length to form a front portion, a central portion and a rear portion, the area or length of the front portion differing from that of the rear portion, the front and rear portions partially overlapping with one another.

Examiner's report to the Comptroller under Section 17  
(The Search report)

77

Application number  
GB 9408870.5

Relevant Technical Fields

UK Cl (Ed.M) B8C (CWA1, CWP2, CWT2)  
(ii) Int Cl (Ed.5) B65D 85/16

Search Examiner  
S R SMITH

Date of completion of Search  
22 JUNE 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant  
following a search in respect of  
Claims :-  
1 TO 16 AND 21

(ii) ONLINE DATABASES: WPI

Categories of documents

- X: Document indicating lack of novelty or of inventive step. P: Document published on or after the declared priority date but before the filing date of the present application.
- Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.
- A: Document indicating technological background and/or state of the art. &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2221667 A (SMITH & NEPHEW) see line 9 of page 3 to line 1 of page 4, and lines 7 to 24 of page 11	

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).



Patents Act 1977 **SECOND SEARCH**  
 Examiner's report to the Comptroller under Section 17  
 (The Search report)

78 Application number  
 GB 9408870.5

**Relevant Technical Fields**

- (i) UK Cl (Ed.M) A5R (RPF), B8C (CWAI, CWP2, CWT2)  
 (ii) Int Cl (Ed.5) A61F 13/15, 15/00; B65D 85/16

Search Examiner  
 S R SMITH

Date of completion of Search  
 25 JULY 1994

**Databases (see below)**

- (i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-  
 17 TO 20 AND 22

**(ii) ONLINE DATABASES: WPI**

**Categories of documents**

- X: Document indicating lack of novelty or of inventive step. P: Document published on or after the declared priority date but before the filing date of the present application.  
 Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.  
 A: Document indicating technological background and/or state of the art. &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X,E	GB 2273279 A (KAO) see end portions 213, 215 (Figure 27B) and 243, 245 (Figure 33B)	17 to 20, 22

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).